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# Action Research: An Investigation of Teacher Perceptions of a Job-embedded Professional Development Program in a Suburban High School

Kenneth Williams

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ACTION RESEARCH: AN INVESTIGATION OF TEACHER  
PERCEPTIONS OF A JOB-EMBEDDED PROFESSIONAL  
DEVELOPMENT PROGRAM IN A SUBURBAN HIGH SCHOOL.

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for  
the degree of Doctor of Education

By

Kenneth A. Williams

November 2007

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Kenneth A. Williams

2007

***Dissertation***

Submitted in Partial Fulfillment of the Requirements

For the Degree of Doctor of Education (Ed.D.)

**Instructional Leadership Excellence at Duquesne**

***Presented by:***

**Kenneth A. Williams**

Bachelor of Science in Education, Indiana University of PA, 1992

***Master of Education, Gannon University, May 2000***

***Curriculum and Instruction***

**November 5, 2007**

ACTION RESEARCH: AN INVESTIGATION OF TEACHER PERCEPTIONS OF A  
JOB-EMBEDDED PROFESSIONAL DEVELOPMENT PROGRAM IN A  
SUBURBAN HIGH SCHOOL

***Approved by:***

\_\_\_\_\_, Chair

Derek Whordley, Ph.D.

Professor

Director, Undergraduate Secondary Education

\_\_\_\_\_, Member

Joseph C. Kush, Ph.D.

Associate Professor

Director, Doctoral Program of Instructional Technology

\_\_\_\_\_, Member

Karen Levitt, Ed.D.

Associate Professor

Director, Undergraduate Elementary Education

Director, Leading Teacher Program

Coordinator, Professional Development School

## ABSTRACT

ACTION RESEARCH: AN INVESTIGATION OF TEACHER  
PERCEPTIONS OF A JOB-EMBEDDED PROFESSIONAL  
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By

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November 2007

Dissertation Supervised by Derek Whordley, Ph. D.

Accountability in education is perhaps the most significant issue faced by school leaders and teachers today. With the reauthorization of the Elementary and Secondary Education Act in the form of No Child Left Behind (NCLB, 2001), school districts have been concentrating efforts on meaningful staff development to improve teaching.

Fox Chapel Area School District in Pittsburgh, Pennsylvania has a long-standing tradition of high student achievement and academic success. The adoption of the Professional Education Program (PEP) has enabled the district to provide teachers with staff development opportunities during the school day to closely examine instructional practices. Fox Chapel Area High School (FCAHS) has expanded this to include a specific teacher initiated, action research initiative. Teachers identify areas of inquiry upon which to gather data and make adjustments in instruction and/or assessment to improve student achievement.

This study was designed to be a program evaluation of the PEP program based on teacher perceptions. Utilizing survey instruments and questionnaires, teachers provided feedback to evaluate PEP's effectiveness as a professional development tool. Data was gathered through both qualitative and quantitative means to establish support for the cultural impact of action research on the professional staff.

Data were analyzed comparing three distinct cohorts of educators who completed the action research phase. The data were used to determine if the program had a positive impact on instructional practice and to what degree action research is sustained in the daily lives of the professional educators.

National Staff Development Council's Standards Assessment Inventory and the Professional Development Survey, Section 2 as designed by Lowden (2005) and published in *The Journal of Research in Professional Learning* provided additional information specific to instructional practice.

Results of the study suggested that a positive impact occurred with respect to teacher efficacy issues and improvements in instructional practice. Data suggest that action research, when used as a reflective/professional development tool was sustained after teachers were no longer formally involved in the PEP program as participants.

## Acknowledgments

The process of completing the dissertation has been a long and arduous task. If it were not for the constant support of many people, the completion of the degree would not have come to fruition. It is because of the collective support of so many that I was able to reach the ultimate goal of securing a doctoral degree.

I would first like to thank my family. The last few years were marked with tremendous sacrifice by my wife, Cathy. During this time we had our ups and downs and the most trying of times. Through all of this she stood by me and never wavered in her support of me. What is most remarkable is that she was able to do this with an infant son and the birth of our second child mid-way through the program. She kept as much constant as possible in times of change and uncertainty.

My sons are my most important accomplishment and the things in life of which I am most proud. I missed them far too much and felt cheated by not being able to tuck them in every night, but I always made it a point to be with them as much as possible, even if they were asleep. Now that I have finished this program and reached the goal of completing the program prior to Conner entering Kindergarten, I pledge to be there for both Conner and Bryce more consistently than I have been. My life is now about what you need and deserve.

The program was unique to each person but it held some commonalities among the ILEAD 4 cohort. The group played off of each other's strengths and weaknesses. The time we spent together during our first few years helped establish relationships that will endure the test of time. I am extremely thankful for the encouragement and support of all

of the members of the cohort especially Randy Sydeski, Linda Echard, Nancy Rose, and Shannon Mullholland. Good luck in everything you pursue.

I would finally like to thank all of the other people who surrounded me throughout the process. Everyone from my entire family and friends to colleagues at work has been understanding and supportive. You have given me the strength to keep on keeping on. You provided the motivation and inspiration for me to never give up, but to commit to the very end.

My advice to those who want to walk this road or accomplish any goal in life is based on three simple rules. Have the faith in yourself to be able to complete what lies ahead of you. You are in a position to accept the challenge because of your experiences and how you have prepared yourself. Enter each day with the hope that what you will do, will inspire someone else to dream an impossible dream or fight an impossible fight. You will be an inspiration to those around you, even if you don't see it an obvious way. Love what you have been given and what you are doing. Extend that love to as many people as possible because that is truly the most amazing gift you can give.



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## CHAPTER 1

### INTRODUCTION

Numerous initiatives, laws, and mandates have shaped educational practice across the country. These changes have been initiated by many agencies including federal and state governments, resulting in local school districts responding to these initiatives. Accountability is the focus of most of these initiatives as a means to improve education from a global perspective. Though these changes and enhancements to educational improvement are designed to help assure improved educational opportunities for all students and to increase the rigor of educational standards, the greatest impact on improving the quality of education for children must occur at the classroom level.

The most note-worthy of these new regulations is the No Child Left Behind (NCLB) Act of 2001. Established as a reauthorization of the Elementary and Secondary Education Act, NCLB has placed school districts and individual schools on notice of needing to reach the ultimate goal that all students shall be able to read, write and perform mathematical functions at a minimum (proficient) level by the year 2014. The establishment of these expectations has compelled many school districts to critically examine existing curricula and pedagogy and make adjustments where necessary.

The federal legislation is geared toward addressing accountability issues in education. Accountability measures have taken on numerous appearances in school districts and states throughout the United States. Each individual state has been charged with establishing criterion for statewide testing measures to determine the success of individual schools. As a result, school districts are now feeling increased pressure to succeed and to bolster standardized test scores. The curricula are now being scrutinized

as never before. The impact these adjustments have had on the classroom varies greatly, but it would be fair to say that classroom teachers, now more than ever, have been forced to examine their own instructional practice in order to impact student achievement.

It is also essential that school districts maintain high expectations when hiring highly qualified teachers as established by NCLB. Although NCLB does not specifically define the term “highly qualified,” state departments of education are charged with establishing this criteria and then submitting those standards to the federal level for approval. Despite the lack of a more specific definition, federal legislation mandates the teachers must not only meet initial certification requirements, but professional educators must also participate in ongoing professional development activities. Each state has the ability to define those criteria. It is the goal of NCLB to have a highly qualified teacher in every classroom and to mandate that every teacher meet continuing education criteria in order to provide children with rich learning experiences that lead to higher student achievement. Within the Commonwealth of Pennsylvania, teachers may meet this continuing education requirement through district sponsored in-service programs or through continuing education at accredited post-secondary institutions.

#### Professional Development Defined

Professional development is an essential element for changing and informing the practice of every professional. In education, professional development takes on a variety of forms. In order to add clarity to this discussion, specific definitions of professional development are essential. Professional development can be defined as “those processes and activities designed to enhance the professional knowledge, skills, and attitudes of

educators so that they might, in turn, improve the learning of students” (Guskey, 2000).

As this definition suggests, not only is it important to improve one’s knowledge and skills, but also, in turn, these should be used to improve the classroom experience of the students. Additionally, Guskey (2000) suggests that three characteristics are necessary for professional development to be meaningful. These characteristics include intentional, ongoing, and systemic (p. 16) efforts.

Supporting the research efforts of Guskey, the National Staff Development Council in its establishment and revision of staff development standards validates these claims of the ongoing, systemic, and intentional characteristics of effective professional development. The NSDC (2001) defines staff development as the process “by which educators acquire or enhance the knowledge, skills, attitudes, and beliefs necessary to create high levels of learning for all students” (p.2). Additionally, NSDC recognizes that on going and professionally challenging professional development is absolutely essential for those who impact student learning.

Loucks-Horsley et al. (1990) posits that this is the case. In her work concerning professional development, she asserts that “the continuous learning perspective of a teacher is invaluable. For new and veteran teachers alike, sporadic in-service workshops do not work” (p. 123). She continues that, in order to be successful, professional development needs to be sequentially planned, must add to teachers’ content knowledge, must contribute to new pedagogical approaches, must be followed by coaching opportunities, and must provide teachers with the opportunity to learn about the changes their colleagues are making in their own classrooms (p. 123).

Veteran teachers and administrators can easily understand why a professional development program needs to be intentional and on going. Operating with a purpose in mind and sustaining an effort over a prolonged period of time are precursors to success. The systemic nature of a program adds to the pervasiveness of a change effort and is “not seen in terms of individual improvement, but also in terms of improvements in the capacity of the organization to solve problems and renew itself” (Guskey, 2000, p. 21). An important extension of what is to occur, according to Guskey, is the improvement of the entire school system not simply one educator’s ability to improve instruction. An investigation of a program aimed at a system-wide approach to professional development in a school or school district would strengthen and re-affirm these assertions. One advantage of implementing a program that is job-embedded and on-site is the ability of others in the organization to experience the program, even if only on a secondary or tertiary level. The cumulative effect of improvements in instruction among cohorts of teachers from classroom to classroom which, in turn, enhances the capacity of a school as a learning community would reach the goals posited by Guskey.

#### Action Research as Professional Development

One major refinement to teacher preparation programs and to professional development of in-service teachers encompasses reflective practice. Both pre-service and in-service teachers are being coached and educated on what it means to be a reflective practitioner in order to improve their own instructional practice. Reflection allows teachers to critically examine lessons and units of instruction in order to refine pedagogy and improve instruction.



Through examining various undergraduate course catalogs, it becomes readily apparent that the emphasis on reflective practice is becoming more commonplace. This acknowledgement of the trend of action research being added to undergraduate and pre-service teacher education programs of study is evidence of the strength and popularity of action research and reflective practice as important components of educational practice. A discussion of specific examples will occur later in this research study.

Although reflective practice can take many shapes, action research has come to be a popular method of engaging professional educators in meaningful professional development as well as student performance. Noffke (1996) orates that, “action research is increasingly included in programs of pre-service and in-service teacher education, in school reform initiatives, and in requests for proposals from foundations and from major educational research organizations” (p. 307). This assertion is further supported in the Process Standards of the National Staff Development Council (2001) in which the NSDC advocates for diverse learning opportunities for teachers and administrators including examining student work, networking, study groups, and action research.

Most educators have been exposed to the large, sweeping staff development and in-service meetings on how to facilitate change throughout an entire school or district. In large part, that information is not personalized to the classroom level. “As a professional development process, (reflective practice) provides teachers with an opportunity to examine their own teaching and to make changes in their instructional techniques” (Fettig, p. 4). Additionally, Dunne (2002) contributes to the argument of professional development being most relevant when it focuses “on teacher’s real work, provides

teachers with opportunities to make choices about their own learning, happens over time, and contributes to building a professional culture of collaborative learning” (p. 67).

Fettig (1999) continues to elaborate on the personalization of action research (reflective practice) because of the intimate nature of what the educator is asked to do. “Through the process of observation and reflection, individuals become more sensitive to their behaviors, the assumptions that drive those behaviors, and the impact of their action” (p. 24). Once again, it is this direct and personalized approach to enhancing classroom practice that shows promise in being an effective tool through which academic improvement can be facilitated.

### Evaluating Professional Development

The evaluation of professional development programs should be a part of the initial planning. Well-designed evaluation will provide important feedback regarding the attainment of goals and the impact a program has had on a professional community. Determining evaluation criteria will provide a framework to plan the intentionality, sustainability, and systemic nature of a program or practice. The Joint Committee on Standards for Educational Evaluation is a national organization comprised of representatives from other national associations and organizations including American Educational Research Association, American Federation of Teachers, Association for Supervision and Curriculum Development, National School Boards Association, and others. The Joint Committee concerns itself specifically with evaluation standards and is seen as one of the gold standards for evaluation resources and protocols.

The Joint Committee on Standards for Educational Evaluation, Second Edition (1994) offers its definition of evaluation to be “the systematic investigation of the worth and merit of an object” (p. 3). Research has been conducted on the effectiveness of and the need for evaluating professional development (Guskey, 2000). As an extension of the research findings and additional implications of Lowden’s (2005) research, a program evaluation of a job embedded, professional development program would add to the body of literature and increase the base of research knowledge to support the value of professional development in improving student achievement. Lowden’s study concentrated on two suburban school districts in the state of New York. This study emphasized the need for specific planning, preparation, resource support and leadership support in making professional development a valuable and useful tool. Specific recommendations for the study revealed the need to “include a research-based model of job-embedded, sustained, and systemic professional development” (p. 13).

#### Professional Development and Program Evaluation

The variety of professional development opportunities available to professional educators abound. Programs from half-day and daylong seminars to weekend and week long offerings are common in education. These workshop opportunities exist in a variety of contexts from local programs to regional seminars, to national offerings, and national conferences conducted by numerous professional organizations. Because the usefulness of staff development and continuing education opportunities are often determined by the individual him or herself, many of these local, regional, or national conferences often fall short of expectations and may not lead to sustained changes in instructional practice.

What is it, then, that makes one experience so different than another? Similarly, what is it about a program that can be well received by some of the participants and leaving others wanting for a more worthwhile experience? When a program does seem to have a positive impact on a professional, the prolonged, sustained use of the technique or the knowledge acquired also comes to be suspect. One might argue that for a program to be seen as contributing to the improvement of an educational setting, the content must not only be used upon return to the classroom, but also sustained over the course of time.

One advantage that action research appears to have over other staff development programs is the need to gather data and study a dilemma over relatively prolonged intervals, most often weeks or months at a time. In Michel's (2005) dissertation study of the professional literature, she summarized and rank-ordered the key criteria of effective professional development as enumerated by various organizations and authors, such as the United States Department of Education, Council for School Performance, the American Federation of Teachers and university researchers. She determined that sufficient time and necessary resources were needed to support effective professional development. Specifically, the literature supports the need for teachers to return to their classrooms to implement new ideas, gather feedback, and seek additional perspectives through mentoring, observation, and communicating with other professionals (Michel, 2005, p. 29). Guskey (2000) again enters the discussion and posits that professional development is an invaluable tool that needs to be "woven into the fabric" of what teachers do and that "it is embedded in the process of developing and evaluating curricula, instructional activities and student assessment" (p. 38).

In her examination of the innovative utilization of time by 15 school programs, Raywid (1993) determined that time must be utilized during the “prime time” of the school day, over a sustained interval, and a common preparatory time is not sufficient (p. 33). Structuring professional development in this fashion and embedding it into what teachers do on a more regular basis would give an individual educator the opportunity to employ the “question, plan, do, study, reflect, modify” regimen that is espoused by the various action research models. The very nature of action research necessitates an individual taking time to study a topic at length and in-depth. This dedication to prolonged study would seem to support a genuine interest in wanting to improve one’s craft.

### Statement of the Problem

While several professional development models that utilize action research as the vehicle for improved instruction exist, this researcher has been unable to locate one specific model that employs the implementation criteria and agreed upon elements of staff development as outlined previously. Identified areas of need in the literature continue to state that more extensive research needs to be conducted on professional development programs that would add to the research base on effective instructional practice and professional development. The paucity of literature that exists has motivated this researcher to investigate the professional development program utilized in a suburban high school located north of Pittsburgh, Pennsylvania. This investigation will take the form of a comprehensive program evaluation.

As Guskey (2000) outlines in his work, there are four specific reasons to engage in program evaluation of professional development:

1. There is currently a better understanding of the dynamic of professional development and thus leading to the ability to better measure progress in more meaningful ways.
2. The intentionality of professional development leads to the ability to gather data about change efforts in an attempt to recognize the success of a specific program.
3. There is now a need for more accurate, dependable information to guide specific professional development efforts in order to empirically support efforts and to examine conditions for success, cost factors, and unexpected impacts of programs.
4. Accountability measures make it necessary to demonstrate the effectiveness of programs.

The program under investigation has been in place for the previous six school years. Through extensive planning, the program was designed for teachers to participate in professional development activities as an assigned part of the school day. As will be elaborated in greater detail in the following chapter, the second phase of the program employs action research as the primary vehicle of providing staff development to the high school faculty. This evaluation of a job embedded, action research model of staff development will add clarity to the existing questions concerning the effectiveness of what is recommended as essential elements of professional development.

Specifically, a thorough examination of this program and the reason for this study will contribute to the literature related to:

1. Improved pedagogical strategies utilized as part of daily instruction.
2. Improved teacher efficacy.
3. Improved practice related to teacher's reflective inquiry and lesson revision.

### The Research Purpose

Expanding upon the research conducted by Guskey, Lowden, the NSDC and others, this program evaluation is being conducted to add to the research base and to provide the start of a more intensive examination of a specific model already in place in a public school setting. Lowden (2003), for example, conducted research in her dissertation on professional development in general. As a result of her research in two school districts located in New York surveying classroom teachers in grades kindergarten through grade 12, she reports that effective professional development occurs during the school day as a matter of process, and incorporates an element of action research as a matter of format (p. 76-77). Additionally, in Lowden's (2003) recommendations for further study, she suggests that her study be replicated in other school systems with particular examination of the impact of professional development at specific grade levels (p. 116). This research, however, was restricted to an evaluation of professional development in general, not on a specific program. It is necessary to move from this broad perspective of professional development to a more focused approach of evaluating specific programs in order to help define and plan effective staff development opportunities for educators. Previous research has identified a difference in effectiveness between daylong workshops as opposed to systemic and prolonged professional staff development programs in changing professional practice on the part of adult learners (NSDC, 2005, p. 13).

The objective of this research is to examine one program in particular that has those elements established in the literature as contributing to meaningful staff development and to examine its merit as being a model of professional development for other schools to follow. This program evaluation will contribute to the research literature in providing evidence of the success and accuracy of the NSDC standards listed above. This research will examine the Professional Education Program (PEP) course at Fox Chapel Area High School as to its program effectiveness.

While professional educators have been involved for three years in examining classroom practice through action research, evidence needs to be gathered as to the impact of the course on the professional staff and gains in student achievement. At the inception of the program during the first phase in 2001, four main goals were established: increase the use of technology as an educational medium, enhance existing curricula beyond the status quo, use technology as a management tool, and continue the implementation and refinement of the current supervision model. A more extensive evaluation of the current action research phase of PEP would be useful in determining the effectiveness of job-embedded, site-specific action research to effect change in teachers' daily instruction.

In applying the NSDC Standards and the recommendations of the Joint Committee on Standards for Educational Evaluation, the research questions to be investigated are:

1. As a result of participating in action research through the Professional Education Program, have teachers made changes to their daily delivery of instruction?



2. To what degree was data from action research used to inform teacher practices (Process Standard)?
3. To what extent has the Professional Education Program been successful in preparing educators to apply research to decision making that directly impacts their classrooms (Process Standard)?
4. To what extent has the use of action research as the conduit of professional development deepened teachers' understanding of content knowledge and instructional strategies (Content Standard)?
5. To what degree does the Professional Education Program align to the National Staff Development Council Standards?

The aforementioned research questions translate into the following directional research hypotheses:

Hypothesis 1: There will be significant changes in instructional practice as a result of teachers completing the Professional Education Program course as reflected in the questionnaires and standard interview questions.

Hypothesis 2: There is significant alignment between the goals and structure of the Professional Education Program and the 12 standards of the National Staff Development Council.

Hypothesis 3a: Following the completion of the Professional Education Program course, there is a greater likelihood for teachers to use data as a means to continually inform instruction (Process Standard).

Hypothesis 3b: Following the completion of the Professional Education Program course, there is a greater likelihood for teachers to apply research in making decisions about classroom instruction (Process Standard).

Hypothesis 3c: Following the completion of the Professional Education Program course, there is a greater likelihood that teachers will come to a better understanding of effective instructional strategies and make improvements in their content knowledge (Content Standard).

### Summary

Professional development is an essential element of improving teaching and learning. Action research when used as the vehicle to provide staff development can provide meaningful data and experiences to address very specific aspects of a professional educator's practice. While growing in popularity, additional data are needed to address the questions and hypotheses listed above. What follows is a discussion of the professional literature related to this area of inquiry.

## CHAPTER 2

### LITERATURE REVIEW

The purpose of the review of literature is to establish the link between action research as effective professional development as it relates to changes in instructional practices and, subsequently, improvements in student learning. It is important to have an understanding of, and appreciation for, action research in this context. While specific models of action research will not be comprehensively evaluated as part of this study, it is important for the reader to have an understanding of the various models along with their similarities and differences.

It is also important to examine how action research has been applied to changes in instructional approach with the focus on increased student achievement. Action research has been used largely on individual bases to improve some aspect of a teacher's individual classroom performance. As discussed by Norlander-Case, Reagan, and Case (1999):

Action research is concerned with the development, implementation, and evaluation of solutions to real, immediate problems and concerns that classroom teachers face every day in their professional life. The source of the problem to be studied is experiential, the methods are pragmatic and flexible, and the goal is to promote positive change in a specific context.

(p. 43)

Changes in instructional practice can occur through professional development programs. As will be discussed in subsequent pages, effective professional development

leads to effective instructional practice. It is also a purpose of this review of the literature to establish this link.

### Action Research Defined

Action research is defined by Glanz (1998) as “a type of applied research (that) is a form of research that is conducted by practitioners to improve practices in educational settings” (p.20). There is some record of action research having its origin as far back as the beginning of the 20<sup>th</sup> Century and John Dewey, yet the roots of action research being used on a broad and consistent scale appear to take hold with Kurt Lewin in the 1940’s. About one decade later, it was Stephen Corey who popularized its application in education (Glanz, 1998). Glanz continues to expand on the popularity of action research by such innovative and distinguished scholars as Hilda Taba from Teachers College, Columbia University and additional educators in Europe in the late 1970’s.

The Humanities Curriculum Project (HCP), directed by Lawrence Stenhouse, is another example of teacher-initiated research as a means to “emancipate the individual pupil from the control of the authoritative knowledge” in British schools in the 1970’s (Hopkins, 1985, p. 3). Hopkins (1985) further elaborates on the expansion of action research in the Ford Teaching Project as championed by John Elliott and Clem Adelman following the HCP (p. 2). This began what would come to be known as the movement of teacher as researcher or action research. Although its integrity had been challenged by the research community, action research has gained momentum over time and is seen more widely as a legitimate vehicle for transforming classroom instruction today.

Sagor (2000) expands on the definition of action research as “a disciplined process of inquiry conducted by and for those taking the action. The primary reason for engaging in action research is to assist the actor in improving and/or refining his or her actions” (p. 3). Action research, therefore, is not simply looking at or for an issue and trying to improve upon it, but it is a very thoughtful, calculated and disciplined approach to gathering data, finding potential solutions and implementing change. This is further supported by Wildman, Niles, Magliaro & McLaughlin (1990) as they describe the reflective nature of action research as “an active effortful enterprise; it does not just happen” (Clift, Houston & Pugach, Eds. p.148). Cochran-Smith and Lytle (1992) agree that action research is “systematic and intentional inquiry carried out by teachers” (p. 7).

Action research has not been defined exclusively by the American or British educational communities. Action research can be seen in educational communities throughout the world. In their book on action research planning, Australians Kemmis and McTaggart (1988) expand on the previous definitions adding additional elements:

Action research is a form of collective self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own social or educational practices, as well as their understanding of these practices and the situations in which these practices are carried out. The approach is only action research when it is collaborative, though it is important to realize that the action research of the group is achieved through the critically examined action of the individual group members. (p. 5)

It is important to note that while action research is conducted by individuals in their own particular setting, collaboration in a group setting is where this method's strengths lie. The popularity of action research in Australia is attributed to two main sources, "the growth of school-based curriculum review and development, and a growing professional awareness among teachers seeking new ways of working and of understanding their work" (Kemmis & McTaggart, 1988, p. 7).

As is supported by the more recent work of the National Staff Development Council, traditional approaches of staff development and the true nature of what piques the interest of the teacher are becoming widely different. The expansion of action research in the educational arena appears to be in response to educators becoming more reflective in their teaching and to their ability to ask very direct and rich questions about best practices. This personalization of examining professional practice may have a profound impact on teachers' pedagogy and students' ability to learn in more efficient ways.

The practicality of action research is not to be denied. Johnson's (2005) research on the purpose of action research can be summarized by defining it as "the process of studying a real school problem ... with the goal to improve one's teaching practice or enhance the functioning of the school" (p. 27). Again, the emphasis remains with identifying a "real world" problem and exploring alternatives to improve practice. This element also begins to incorporate the notion of a system-wide approach within a school or school system.

### Benefits of Action Research

Jeffrey Glanz (1998) elaborates on the benefits of action research in his book *Action Research: An Educational Leader's Guide to School Improvement*. Among the benefits are:

- Creates a system wide mindset for school improvement
- Enhances decision-making
- Promotes reflection and self-assessment
- Instills a commitment to continuous improvement
- Creates a more positive school climate
- Impacts directly on practice
- Empowers those who participate in the process (p. 21)

Again, Sagor (2000) expands on the benefits of action research by adding that it is the relevance of the research being conducted by the researcher and consumer of that research that makes action research such a powerful tool within the classroom (p. 3). It is the educator's choice of what will be examined that draws the professional to the action research process.

Additionally, the benefits of action research transcend the immediate impact on classroom practice. It extends beyond the classroom and penetrates a school's culture. "[The literature] views the main benefits of action research as lying in the areas of greater self-knowledge and fulfillment in one's work, a deeper understanding of one's own practice, and the development of personal relationships through researching together" (Noffke, 1996, p. 306).

As inferred in his benefits of action research, Glanz (1998) supports the aspect of promoting reflection and self-assessment. The act of reflecting on one's practice then shapes the action research process to become a cyclical one (p. 27). Although the reflective process can and should occur at any stage of the action research process, reflection at the end of the action step promotes additional questioning which leads to areas of further or deeper investigation.

The role of teacher as a reflective practitioner is further supported and advocated by Norlander-Case, Reagan and Case (1999), "Further, not only is the reflective practitioner engaged in inquiry, but the nature of that inquiry should be classroom based and most likely of an action-research type" (p. 40). Action research and reflective practice are complimentary forms of professional development that lead to a deeper understanding of one's professional practice.

### Emphasizing Collaboration and Reflective Practice

As delineated in the definition of action research, collaborative exchanges and reflection on practice are the backbones of the entire process. While individuals are forced to delve deep into their own practice and critically examine their pedagogy, the strength of the process comes when the initial ideas are shared in order to receive multiple, constructive feedback and in the reporting back of data after interventions have been implemented.

The open forum that is generated through action research establishes validity in the research methodology. Huberman (1996) explains:



This combination of (a) intimate local knowledge, (b) familiarity with the community of fellow researchers studying the same questions, (c) minimally reliable methods, and (d) conceptual mastery of the most likely mechanisms in play is a powerful mix. Few working researchers can compete with it. ( p. 132)

This researcher also explains that the community of learners that is generated because of this sharing further justifies that the need is not necessarily for the research community to know but for teachers to share information of what they know among their own colleagues (p. 131).

The need to be a reflective and collaborative practitioner is not simply as an act of looking at one's practice and making adjustments in instructional delivery. The act of reflection and sharing has the ability to contribute to the knowledge base of education. Cochran-Smith and Lytle (1999) expand upon this as they add to their conceptual framework on practical inquiry stating, "theorizers in this group assume that some of the most essential knowledge for teaching is practical knowledge. This approach to theorizing teacher research emphasizes that knowledge comes from reflection in and on practice" (p. 19).

Ross (1990) operationalizes reflective practice to give it a theoretical framework. According to her:

The elements of the reflective process include:

- recognizing educational dilemmas;
- responding to dilemma by recognizing both the similarities to other situations and the unique qualities of the particular situation;

- framing and reframing the dilemma;
- experimenting with the dilemma to discover the implications of various solutions;
- examining the intended and unintended consequences of an implemented solution and evaluating it by determining whether the consequences are desirable. (p. 98)

By comparison, Pugach and Johnson (1990) assert a four-step process for peer collaboration. The four steps that make up the peer collaboration process include:

1. Clarifying problems of practice by self-questioning in a guided learning situation, a strategy in which particular questions are posed and responded to as a means of reframing the nature of those problems;
2. Summarizing the redefined problem,
3. Generating possible solutions and predicting what might happen should they be utilized,
4. Considering various ways of evaluating the effectiveness of the solution chosen. (p. 189)

At the heart of the need for collaboration is the disposition teachers need in order to be reflective and share their knowledge with others. Pugach and Johnson (1990) state:

We find that the acquisition of and continuing support for a reflective disposition among teachers can be mediated and substantially enhanced by peers, whose role might be described as helping to stretch the limits of their colleagues' capabilities for reflection. Our concern in the arena of

reflective teaching is the social and collegial nature of the act of reflection and, specifically, the role of collegial dialogue in advancing the development of a reflective stance among teachers in practice. (p. 186)

Complimenting the dispositional nature of action research, the National Staff Development Council (2001) emphasizes that acquiring and enhancing an educator's beliefs and attitudes through staff development is essential to providing high quality learning experiences for students (p. 2).

#### Teacher Empowerment/Teacher Efficacy

The strength of action research as a professional development tool lies with the teacher empowerment that comes with it. As educators are able to dissect their practice, gather data, and make improvements in pedagogy in a risk free environment, the more apt they are to embrace this method as viable and rewarding. When implemented or embraced on a large scale, sweeping cultural effects can be felt.

Given the very nature of action research as being collaborative, it is no surprise that this form of staff development promotes an exchange beyond the walls of one classroom. Hughes and Seymour-Rolls (2000) cite "participatory action research" through which these broad changes can occur:

Participatory action research (PAR) is a method of research where creating a positive social exchange is the predominant driving force. PAR grew out of social and educational research and exists today as one of the few research methods that embrace principals of participation and reflection,

and empowerment and emancipation of groups seeking to improve their social situation. (p. 1)

Following these ideals of empowering teachers and promoting a certain culture within a system, action research can be used as the vehicle to diagnose areas of curiosity specific to individual school or classroom environments. The investigations that ensue enable organizations to learn about a situation and work towards a solution tailored to that given situation. Allen and Calhoun (1998) reinforce part of the promise that action research shows is in the ability to build capacity in individuals and, subsequently, entire organizations in order to advance their present understanding and change practice (p. 706). They continue to elaborate on this relating the ability to conduct action research to educator's sense of job satisfaction as well. Allen and Calhoun (1998) emphasize, "teachers deeply involved with action research reported an increase in their sense of efficacy and professional expertise" (p. 709).

Cochran-Smith and Lytle (1992) advocate for action research as a tool to "better understand and ... transform teaching practices" (p. 19). In addition, they describe "teachers who engage in self-directed inquiry into their own work in classrooms find the process intellectually satisfying" (p. 18).

The concepts of empowerment and reflection find their intersection in the work of Houston and Clift (1990). These researchers bring together these two elements in their work on *The Potential Research Contributions of Reflective Practice*. They developed numerous hypotheses about reflective practice in this work. In citing Hypothesis Two:

Programs attempting to develop reflective practitioners are enhanced through freedom and empowerment. Freedom and empowerment are twin

assumptions of reflection. Constraints on the scope of thought lead to constraints on freedom and thus on reflection. To reflect, an individual must not only be free to think but also feel empowered to think. (p. 213)

### Teachers versus Researchers

There still remains some debate about action research being a championed form of research. This debate stems from the research community questioning whether teachers have the content expertise in the field of conducting research for it to be considered legitimate. Hodgkinson (1957) said of teachers, supervisors and administrators that they may lack the “familiarity with the basic techniques of research” thus making research difficult from a procedural standpoint (p. 141). He continues to question whether this type of research drives teachers to continue refining their practice, or if it leads them to become complacent, having found the answers to all of their questions. Hodgkinson writes:

The important follow-up questions, such as what happens to a teacher after action research results have been put into practice are seldom asked. It would seem that teachers would have a greater cause to become stagnant, if they did incorporate action research findings into their teaching, as they could then defend their techniques on the grounds of scientific objectivity, saying “this is the best way because four years ago we tested it through action research.” (p. 143)

Noffke (1996) counters this mindset by viewing action research as an “ongoing process, an inherent part of teaching” rather than being seen as a shortfall (p.316).

Some of the biggest supporters and recognized experts of action research acknowledge the pervasiveness of questioning the validity of action research. Cochran-Smith and Lytle (1999) pull this in to sharp view when comparing what higher education may feel about advocating teacher inquiry as research:

This work also raises questions about what it means for one to be both participant and researcher in a particular program or project and what it means to expose intentionally one's own biases, assumptions and purposes. Some members of the university culture challenge whether this kind of work should count as research at all, an issue that is brought into sharp relief when doctoral students (and their professors) assert the validity of teacher research as dissertation and when university-based practitioner research is presented for promotion and tenure review or when university faculty devote considerable time and intellectual resources to newly-configured work in schools. (p. 21)

On the other hand, teachers are able to access information and observe situations without disrupting the environment thus altering the realism that is needed to make effective use of data. Additionally, teachers have such a rich knowledge of pedagogy that they may be able to look at instruction and student behavior from a perspective not possible by the untrained eye of a researcher. Huberman (1996) asserts "there is something exciting in the idea that teachers ask questions that researchers may not think to ask, that teachers see patterns that others might not discern unless they altered their frames of looking" (p. 124). He further elaborates that this immediacy and timeliness of the teacher being able to conduct research is vital to making modifications in practice

immediately. Teachers are able to make adjustments and “(create) or (repair) learning activities on the spot without losing the flow of activity” (p. 133).

There is also a very distinct contrast in the terms “teacher research” and “research on teaching.” Cochran-Smith and Lytle (1992) state this dichotomy best:

By research on teaching, we refer to the large body of literature accumulated over the last several decades that has attempted to open the “black box” of classroom teaching and learning. By teacher research, we refer to the growing body of literature that has accumulated over the last decade and that has attempted to represent teachers’ work from teachers’ own perspectives. (p. 10)

They continue in their vehement defense of action research in citing that this process may actually provide evidence of deep lying theoretical frameworks based on teachers’ decisions and questioning. If it is true that their thought processes follow a particular “conceptual framework,” teachers may not simply be users of knowledge but producers of theory (p. 17).

This debate over the legitimacy and efficacy of action research is addressed again by Huberman (1996). He establishes the overlap between teacher researchers and the “empirical scholars” when he speaks of the empowerment movement being mainstream. This movement “transcends individual perceptions and even contains evidence of regularities; the methods are either classically empirical or derived from systematic action research. Such approaches actually bring teacher researchers and empirical scholars from the academy to the same platform” (Huberman, 1996, p. 129).

### Pre-Service and In-service Development

The rise in popularity of action research can be felt by both in-service teachers and in pre-service/teacher preparatory programs as previously mentioned in Chapter 1. Many universities now enhance their curriculum of teacher preparation programs with either entire courses dedicated to action research or significant action research assignments. This reform in teacher preparation and in-service training seems to come off the heels of Cochran-Smith and Lytle's (1992) work when they advocated for both pre-service and in-service programs to "prompt teachers and teacher educators to construct their own questions and then begin to develop courses of action that are valid in their local contexts and communities" (p.63). School systems have increasingly come to support action research as a staff development tool as well. While not all of the supports are consistently in place in educational settings, Cochran-Smith and Lytle (1999) report this popularity as a professional development tool can be seen at the national, state, school district and individual school level (p. 17).

Noffke (1996) closely examined the popularity of action research through the 1950's. He said that action research was becoming popular not for the benefits of generating additional knowledge but used as staff development (p. 318). He continues to say that action research is actually an "(example) of the many substantive arenas in which attempts to reform both curriculum and teaching were enacted" (p. 316).

Further evidence of the support action research is gaining in the pre-service and in-service arenas can be found in the work of Darling-Hammond and McLaughlin (1995). The following is an excerpt from an article that appeared in *Phi Delta Kappan*:



Beginning with pre-service education and continuing throughout a teacher's career, teacher development must focus on deepening teachers' understanding of the processes of teaching and learning and of the students they teach. Effective professional development involves teachers both as learners and as teacher and allows them to struggle with the uncertainties that accompany each role. It has many characteristics:

- It must engage teachers in concrete tasks of teaching, assessment, observation, and reflection that illuminate the processes of learning and development.
- It must be grounded in inquiry, reflection and experimentation that are participant-driven.
- It must be collaborative, involving a sharing of knowledge among educators and a focus on teachers' community practice rather than on individual teachers.
- It must be connected to and derived from teachers' work with their students.
- It must be sustained, ongoing, intensive, and supported by modeling, coaching and the collective solving of specific problems of practice.
- It must be connected to other aspects of school change. (p. 598)

These same attributes mentioned above describe the design of action research as well.

Allen and Calhoun support the findings of Darling-Hammond and McLaughlin in their work that defines additional elements of effective professional development. Allen and Calhoun (1998) offer four characteristics of effective professional development:

1. Substantial, ongoing opportunities for everyone involved to reflect together about the underpinnings of action research,
2. The content of professional development needs to focus on the actions that help change the culture of the school into a more supportive, nurturing community,
3. Those who lead or facilitate school-wide action research need to help organizers understand that it takes time to build a school's capacity; and,
4. While school-wide action research is intended to be school-wide in its scope, facilitators and organizers need to recognize that the process must be relevant to the individual questions and classroom needs of the teachers if they are expected to take part. (p. 709-710)

It is important to note that specific instruction regarding action research is needed on the part of the professional educator because a common definition or understanding of action research may not exist. This common definition of action research within a system would contribute to a systemic, conceptual understanding of action research. Care must be taken to not simply define action research as reflective practice as this may lead to confusion of the extent to which teachers should engage in the process. This is supported by Fetti (1999), who explains:

Although programs or professional development opportunities available to experienced teachers may address “reflective practice” as a useful teaching and learning tool, they rarely explore it in depth because of lack of understanding, knowledge, time and resources within the school environment. (p. 3)

Therefore, care must be taken to establish this common understanding with participating teachers.

Action research also includes elements of collaboration with peers. This peer collaboration often takes the form of established cohorts to take advantage of consistent feedback from a variety of other professionals in order to contribute to the problem solving aspect of action research. This collaborative, cohort approach is supported by Pugach and Johnson (1990), “continuing support for a reflective disposition among teachers can be mediated and substantially enhanced by peers, whose role might be described as helping to stretch the limits of their colleagues’ capabilities for reflection” (p. 186).

The National Center for Research on Teacher Learning (NCRTL), founded by the College of Education at Michigan State University views professional development of teachers as a vital link to improving student learning (NCRTL, 1995). It is the view of NCRTL that professional development exists “to enable teachers to learn what they need to know and change their practice” and that “learning opportunities consist of more than in-service workshops and short courses” (NCRTL, 1995). Additionally, teachers need the time necessary to reform goals, engage in the new technique, and examine the results of their work, and all of this “must be stitched into the work routine of teachers” (NCRTL,

1995). The key emphasis rests in the allocation of time, resources and the ability to work with colleagues during the process.

As an example of this extended opportunity to study a dilemma, the Madison Metropolitan School District in Madison, Wisconsin has engaged in classroom action research (CAR) since 1990. Teachers in this school district have the opportunity to volunteer to conduct action research within their own classrooms. The teachers are provided six days of release time in order to meet in groups of 4-10 professionals in order to collaborate on their research topic. Within these groups, teachers discuss topics and suggest possible answers to their inquiries using the research data. The program spans an entire academic year. Occasionally, teachers ask for an extension of an additional year in order to continue their study. At the conclusion of their action research, teachers write a report which is posted on the MMSD website (Caro-Bruce, C. & Zeichner, K., 1998).

Fairfax County Public Schools in Virginia has similar opportunities for its teachers. They may engage in professional learning opportunities via action research and receive support from the district. This support comes in the form of assistance from a teacher researcher facilitator, training for group leaders, and substitute coverage for teachers to meet with colleagues. Among the outcomes for teachers who engage in action research are contributions to existing “body of knowledge about teaching and learning, enhances communication between teachers and students, and supports the revision of instructional practice” (<http://www.fcps.edu>). In the spring of each year, Fairfax County Public Schools hosts an annual teacher researcher conference at which action research topics are presented and discussed.

The North Cascades and Olympic Science Partnership (NCOSP), a cooperative program established by Western Washington University, is another example of non-traditional staff development. In the northwestern region of Washington State, teachers from 28 school districts attend a two-week summer seminar for three years in a row and attend daylong, monthly staff development sessions to refine science instruction. Also between sessions, dedicated faculty members provide additional support. One of the school's vice principals, John Van Haalen, mentions, "the most important support he's provided is common planning time" (Principal's Research Review, 2007, p. 2).

Other professional development opportunities exist in school districts that may not be defined as action research opportunities. Some of these opportunities come in the form of common planning time either on a daily or weekly basis. The Milwaukee Public Schools in Milwaukee, Wisconsin have provided for common planning time in a team approach that parallels a pure middle school concept. In this format, teachers are provided with 42 minutes per day of common planning time either across grade levels or according to curricular assignments. The Brandon/Oxford Professional Development School in Ortonville, Michigan has supported a slightly different approach. In this case, teachers are provided with 3 hours every Wednesday to collaborate with colleagues. This school operates on an alternating day, block-scheduling format. (NCREL's Policy Briefs, 1994).

### Models of Action Research

Glanz (1998) further elaborates in his explanation of action research that the process is not an inherently complex one and can be reduced to four "guiding steps":

select a focus, collect data, analyze and interpret data, and take action (p. 24-25). Within this process, there is a great deal of personalization that can occur. It is the luxury of the researcher to identify that aspect of his/her teaching that can be the subject of action research.

Johnson (2005) broadens the process of action research into a five-step process. The process upon which he elaborates begins with identifying an area of exploration or problem followed by planning data collection, collecting and analyzing data, creating an action plan, and sharing the findings and plan of action (p. 21). Often, Johnson continues, a sixth step may be incorporated in the action research cycle that includes a literature review thus establishing a “theoretical context” (p. 21).

Johnson (2005) further expands upon his framework in elaborating upon the gap between theory and practice. He summarizes that the two main reasons for this disconnect are because either the research that is conducted becomes so lengthy and jargon-laden that it is almost impractical for teachers to consider it useful or that the research is handed down in what he refers to as the “Moses Effect” (p. 25). The Moses Effect occurs when a researcher conducts research and hands his findings down through “edicts ... with the expectation that teachers will be passive receivers of these edicts” (p. 25).

One may begin to question this movement toward teacher-led inquiry. In their discussion of teacher-based inquiry, Dana and Yendol-Silva (2003) state their argument for a more introspective examination of instructional practice:

In fact, the knowledge about teaching and learning generated through university study of theory and practice is still defined and generated by “outsiders” to the

school and classroom. While both the process-product and qualitative research paradigms have generated valuable insights into the teaching and learning process, they have not included the voices of the people closest to the children – classroom teachers. (p. 3-4)

It is apparent through their discussion that teachers need to become more of an agent of change and researcher in their own particular classroom settings. Because each classroom environment is unique based upon any number of factors including educational level, family background, school culture, parental involvement, learning difficulties and other factors specific to the school setting, it becomes obvious that cookie-cutter approaches to instructional practice may not prove to be beneficial to every classroom in every setting. It is therefore incumbent upon teachers to examine their own instructional practices and environments to facilitate change.

As noted earlier, conducting action research follows specific cycles or steps. While many researchers have defined various models, each follows a pattern of finding a topic of interest, narrowing a focus to a particular field of inquiry, identifying what the research may already support or identify, gathering data, interpreting that data, and adding meaning by summarizing and applying the data to the initial inquiry. Both Calhoun (1994) and Glanz (1998) support this in their approaches of selecting an area of interest, collecting data, organizing data (Calhoun, 1994) analyzing and interpreting data, and taking action. Although more defined and perhaps more detailed, Johnson (2005) supports these general steps but expands them into a 9 step process adding the aspect of allowing the question or focus to change as data is collected, making conclusions based on the data and offering subsequent recommendations, and then creating an additional

action plan for implementation (p. 49-51). Sagor (2000) summarizes his model in the following seven steps: selecting a focus, clarifying theories, identifying research questions, collecting data, analyzing data, reporting results and taking informed action (p.4).

Action research, also known as teacher inquiry, is not simply reflecting on teaching. As discussed by Dana and Yendol-Silva (2003), teachers very often reflect on a particular lesson or moment in time. This does not necessarily constitute teacher inquiry. As they elaborate further, there are two key characteristics that separate reflection from teacher inquiry. Teacher inquiry is both intentional and visible (p. 7).

The intentionality of the inquiry, or research, focuses teachers on a specific area of concern or problem in a classroom setting. It establishes a context in which teachers may “heighten (their) focus on problem posing” (Dana and Yendol-Silva, 2003).

The visibility of action research is demonstrated through the very public sharing and discussion of the focal area (Dana and Yendol-Silva, 2003). It is not enough to establish an area of interest and go about gathering data. The strength of using action research as a reflective practice is in sharing the findings and entering into collegial discussion about the data and findings generated through a directed action plan.

In his dissertation, Vollmert (2002) describes the use of action research to facilitate student achievement in two high schools in California. His efforts, however, fall short of the intended scope of this examination. His model was to engage entire high school faculties in dialog about action research through the formation of work and task groups. These groups were charged with examining data and then formulating plans for the schools to follow in order to facilitate change. While classroom observations were



briefly mentioned as a means to school improvement, very detailed and specific dissections of instructional practice were not addressed.

In her study of the effectiveness of using the Colton and Sparks-Langer Framework for Teacher Reflection, Fetting (1999) supports the use of action research to improve student achievement. Although her study was conducted at the elementary level and the achievement data gathered were not based on standardized testing regiments, she did offer support that individualized attention to specific classroom procedures suggested increases in student achievement. She sites the work of an elementary colleague who identified the specific reading ability of one student as being lower than his classmates. Through carefully developing a “Book Box” (Fetting, 1999, p. 127) of materials focused at this student’s reading level, the student began to increase his vocabulary and reading ability.

Similarly, Fetting (1999) cites the use of the “Author’s Chair” to improve fluency and attentiveness in reading (p. 129). A second grade teacher identified fluency as a problematic area for her students. She developed the concept of the “Author’s Chair” to enable students to write their own stories and then read it back to the entire class. She structured a lesson in which students would write their own story, read it back to a small group of peers, and then build the confidence to read it back to the entire class (p. 129). Through this process, students built confidence and demonstrated “improvement in their fluency in reading and attentiveness to one another in these small groups” (p. 129).

The limitation with respect to Fetting’s research is that the examples used pertained to a defined and limited number of subjects, a handful at most. Each teacher referred to in the research study identified one student or small group of students upon which to

conduct an action research project. Also, the nature of the action research was specific to motivation and/or behavioral aspects of the child(ren) involved and less about the instructional practice of the educator. The impact of the action research projects may have only been tangentially connected to student achievement. It is the intent of this researcher to examine a more broad approach of connecting instructional practice to classrooms of students instead of isolated examples of individual students.

Ultimately, why should a teacher or school engage in action research? What are the benefits of committing time, energy and resources to identifying concerns classroom to classroom? There are three main purposes to engaging in action research. First, there is the move to build reflective practitioners (Sagor, 2000). Through supporting teacher investigations within their own classrooms, those in leadership positions are empowering teachers to look at their own practice and work to continually improve.

A second reason to embark in action research is to help entire schools make progress on the major priorities of the building (Sagor, 2000). When cadres of teachers are able to identify areas of improvement for a school, whether it is reading skills or improved student achievement scores, the impact can be felt throughout the entire school building.

Third, engaging faculties in action research is essential to building a professional culture (Sagor, 2000). Regardless of what model of action research one examines, each contains an element of sharing the findings with a broader audience. When schools are able to embrace action research as a staff development tool, it is the generation of expertise and the sharing of information within that professional community that begins to shape a culture of professionalism.

Apart from anecdotal reports, the literature falls short in its support of the impact action research has on students themselves. The students' voices and abilities have been absent from the research. This void in the literature is worthy of deeper exploration.

The purpose of this study will therefore investigate the effect action research can play in the refinement of a teacher's practice based on the collection of data and changes that may occur concerning teacher dispositions toward teaching and learning.

Furthermore, it will examine whether or not action research as used as a professional development tool within the Fox Chapel Area High School has become sustained and systemic after three years of implementation.

Asserting the link between effective professional development through action research theory, the application of the National Center for Research on Teacher Learning's *Framework for the Professional Development of Teachers* (1995) is useful. One of the main issues in the reform movement in professional development is that "teachers need to feel that they can critically assess their own practice; teachers need time and mental space to become involved in the ... process; professional development must be redefined as a central part of teaching. It can no longer be an add-on activity tacked on to the school day, week, or year; and, support for professional development must be sustained and long term" (NCRTL, 1995).

### The Intersection of Action Research, Professional Development, and Adult Learning Theory

The effective and successful elements of action research and professional development have their foundations in adult learning theory. The value that teachers find

in professional development efforts can be connected and predicted by a basic understanding of how and why adults learn. Numerous authors have expanded upon the foundational work of Malcolm Knowles regarding adult learning theory. The following is a brief discussion to add to the clarity of why action research as professional development can be a powerful and legitimate tool.

Numerous authors have written about the differences between educating adolescents (pedagogy) and adult learning (andragogy). Terehoff (2002) points to this distinction as being those of “adult’s self-concept, experience, readiness to learn, and orientation to learning” (p. 67). She expands upon this and interprets Knowles’ work on adult learning theory when she suggests that this self-concept mandates “personal freedom to learn, choice of learning, and the relevance of experiences during learning” (p. 67). Additionally, an adult’s readiness to learn is also dictated by life stages and experiences that provide the meaning to what an adult will explore.

In her work on professional development, Husby (2005) draws on the work of Knowles regarding the key assumptions of adult learning and what impact this has on how professional development is structured (p. 5). Knowles (as cited in Husby, 2005) contends adults are motivated through their needs and interests, learning stems from an adult’s particular stage of professional life, experience is vital, self-directed learning is an inherent quality, and differences exist in adults based on age. Knowles (1970) laid this foundation through his assertion that:

One of the almost universal initial needs of adults is to learn how to take responsibility for their own learning through self-directed inquiry, how to learn collaboratively with the help of colleagues rather than to compete

with them, and especially, how to learn by analyzing one's own experiences. (p. 45)

The parallels with action research become readily apparent.

Additionally, Loucks-Horsley et al. (1990) contributes to the discussion about meaningful professional development in emphasizing that staff development be individually guided. "In this approach, teachers, individually or in collegial teams, identify their interests and concerns; establish a goal; and seek input by way of coursework, workshops, ... and other forms of self-study to reach the goal" (p. 137). This assertion draws into sharp focus the tenets of both action research and professional development as they relate to adult learners.

Loucks-Horsley (1990) continues in her discussion of the environment needed for meaningful professional development to occur. She contends that a commitment by the organization needs to be in place emphasizing that the school is not simply a learning community for students, but for adults as well (p. 125). This assertion is vital to communicating the expectations of staff in their need to continually develop.

In her dissertation examining teacher perceptions of teacher growth plans, Krivak-Fowler (2001) draws on the parallels between adult learning and professional growth as well. She cites the work Knowles, Holton and Swanson and the six conditions for adult learning. These include adult input into the content and context of what is learned, adult experience is vital to learning, developmental stages need to be attended, attention related to autonomy needs to be paid by trainers, low anxiety and freedom to take risks are important, and adults learn best when learning via their dominate learning style, but growth in weaker areas must also be provided (p. 30). It is important to note that adult

learning theory was considered by Krivak-Fowler in the investigation of teacher evaluation.

### National Staff Development Council Standards

The National Staff Development Council (NSDC) is a professional, non-profit organization that is dedicated to assuring high quality education for students. The focus of this association, whose membership exceeds 10,000 professionals, is to deliver the highest quality instruction through establishing rigorous standards for the professional learning of educators. At the heart of this professional learning is staff development to provide for extended learning and improvement of educational practices. The NSDC has established itself as a leader in creating professional development standards and in providing educators with extended learning opportunities to enhance classroom instruction.

Research conducted by the National Staff Development Council in West Virginia indicated the “one-size fits all approach” and one-day workshop scenarios have neither a significant impact nor enduring effect on teacher’s daily instruction (NSDC, 2005). The NSDC’s Standards for Staff Development Revised (2001) established that “when most teachers’ and principals’ professional learning occurs away from the school, it serves as a centrifugal force that leads to fragmentation and incoherent improvement efforts” (p. 12). Rather, for staff development to have a prolonged effect, the staff development program must address the needs of the adult learner and be systemic and on-going with collaboration adding a significant element to address, among others, teacher efficacy issues and reflection.

The National Staff Development Council (NSDC) has developed 12 standards to help guide school systems in articulating thoughtful and well-planned staff development efforts. A number of individuals from various professional organizations from across the nation collaborated on these standards. The NSDC (2001) has established that:

The standards provide the vision and framework for making staff development more responsive to the learning needs of educators and students. The standards are also a sophisticated analysis of what it takes to bring high quality professional development to fruition. (p. vi)

The twelve standards are organized in three basic categories: context, process, and content. As Guskey (1996) elaborates, the “content characteristics refer to the “what” of staff development... process variables refer to the “how”... (and) context characteristics refer to the “who,” “when,” “where,” and “why” of staff development.” (p.1). Within each of these general categories, the individual staff development standards clearly articulate what is necessary to focus efforts on in an effective and efficient staff development program. All three dimensions are critical to the success of staff development. “Neglecting any one of these three dimensions can significantly diminish the effectiveness of staff development and drastically reduce the likelihood of improvement in student learning” (Guskey, 1996, p.3). In part, the standards were developed as both a guide and evaluative tool for use by schools, school districts, governmental bodies and individual teachers (NSDC, 2001, p. 3). To serve as a backdrop for this study, eight of those standards will be briefly summarized here.

The Learning Communities Standard states, “Staff development that improves the learning of all students organizes adults into learning communities whose goals are

aligned with those of the school and district” (NSDC, 2001, p. 8). Learning communities is a term that is dominating the educational scene. A discussion on school improvement and accountability cannot occur without some reference to the learning community within a school. The NSDC (2001) asserts:

Staff development that has as its goal high levels of learning for all students, teachers and administrators requires a form of professional learning that is quite different from the workshop driven approach. The most powerful forms of staff development occur in ongoing teams that meet on a regular basis, preferably several times per week, for the purposes of learning, joint lesson planning, and problem solving. These teams, often called learning communities or communities of practice, operate with a commitment to the norms of continuous improvement and experimentation and engage their members in improving their daily work to advance the achievement of school district and school goals for student achievement. (p. 8)

“Staff development that improves the learning of all students requires skillful school and district leaders who guide continuous instructional improvement” defines the Leadership Standard (NSDC, 2001, p. 10). In expanding upon this standard, the NSDC advocates for leaders who develop and support policies and structures to provide for professional development and who provide time in the daily schedule of teachers to engage in collaborative activities (NSDC, 2001, p. 10).

Resource development is vital to the success of professional development. The Resource Standard addresses support of adult learning and collaboration. In addition to



significant budgetary considerations, NSDC encourages schools to dedicate 25% of an educator's work time to collaborating with colleagues (NSDC, 2001, p. 12).

Data drives instruction. This mantra in educational circles summarizes the NSDC standard Data-Driven. Staff development should capitalize on disaggregated data in order to inform instruction and provide educators what they need to development meaningful learning opportunities for both themselves and their students. The changes in student outcomes will provide evidence of their own professional learning. This data need not be relegated to standardized tests but may also be applied to closely examining student work as a form of staff development as well (NSDC, 2001, p. 16).

The design of the staff development is as important to its success as is determining the intended outcomes. In its definition of the Design Standard, NSDC (2001) emphasizes the need for staff development to “(use) learning strategies appropriate to the intended goal” (p. 22). Most educators formulate their own thoughts of what staff development is and how it is presented. Most educators identify with the typical workshop, lecture or formal course work approach to professional enhancement. Many don't consider other valid forms of staff development such as “collaborative lesson design, the examination of student work, curriculum development, ... action research, study groups, and professional networks” (NSDC, 2001, p. 22). The NSDC further expands upon the Design standard in providing for new instructional skills through “coaching, study groups, and action research” (p. 22).

“Knowledge about human learning and change” must also be applied to staff development according to the Learning Standard of the NSDC (2001, p. 24). Human learning is remarkably similar among all age groups. Teachers need time to process

information and talk about new ideas. The interaction among educators is helpful in the learning process in order to formulate deeper understanding of either pedagogy or content knowledge. “Such deeper understanding typically requires a number of opportunities to interact with the idea or procedure through active learning processes that promote reflection such as discussion and dialogue, writing, demonstrations, practice with feedback, and group problem solving” (NSDC, 2001, p. 24).

The Collaboration Standard addresses the need for educators to be knowledgeable and skillful in collaborating (NSDC, 2001, p. 26). In its rationale of this standard, the NSDC basically states that the strength of the whole is greater than the sum of its parts. The group dynamic lends itself to generating solutions and rich discussion about educational practice. Given this strong commitment to collaboration and group work, NSDC (2001) addresses the imperative nature “that professional learning be directed at the quality of collaborative work” (p. 26).

The final standard to be addressed here, and the thrust of this study, is in the Evaluation Standard. The strength of a program or procedure can only be determined by a close examination of the results of that intervention. By addressing the quality of staff development and through looking at the effects of it based on intended outcomes, a great deal of skepticism about its effectiveness by organizational leaders can be addressed (NSDC, 2001, p. 18). In addition to formal qualitative and quantitative approaches to providing evidence of effectiveness, anecdotal reports can also be of influence to school leaders in determining a program’s effectiveness. The evaluative procedures and process should be addressed in the planning stages of the initiative (NSDC, 2001, p. 18; Guskey, 1996. p.1).

The National Staff Development Council's standards have been applied to evaluation of professional development in other states. For example, an evaluation of West Virginia's professional development model from a statewide perspective was conducted in the summer of 2005 (NSDC, 2005). Among other means, the NSDC used policy review, focus groups, and interviews to evaluate the effectiveness of West Virginia's model. As part of the limitations of that study, however, it was suggested that intensive field study be conducted to ascertain if particular improvements are occurring and if desired results are being attained (p. 16).

### Context of the Study

As previously mentioned, school districts are able to develop and implement specific professional development opportunities that address the mandates for continuing education as set forth by NCLB. In the Commonwealth of Pennsylvania, Act 48 of 1999, also known as the Continuing Professional Education Act, was signed into law by Governor Thomas Ridge and amended The Pennsylvania Public School Code of 1949. Act 48 helped to define the necessary continuing education requirements of professional educators in the Commonwealth of Pennsylvania. The Fox Chapel Area School District has instituted a Professional Education Program (PEP) course at the high school that has produced a unique perspective in meeting these continuing education requirements.

At the onset of its previous strategic plan (2000-2006) the Fox Chapel Area Board of School Directors committed, in part, to provide updated and state of the art educational technology to its students and faculty. As part of this multi-million dollar investment, the Board asked for a commitment by the administration to provide the necessary training

and staff development to the teachers of the district to assure proper implementation and application of the technology provided. From this commitment, the Professional Education Program (PEP) at the high school was created.

### High School Profile

The demographic profile of the high school places the school as an affluent, suburban school located in the northern suburbs of Pittsburgh, Pennsylvania. Students reside in six municipalities ranging from low socio-economic areas to those among the wealthiest in the country. Per capita income statistics range from a low of \$15,698 to a high of \$80,610 compared to the state and county ranges of \$20,880 and \$22,491 respectively. Median Household income ranges from \$22,828 to \$147,298 and family income medians of \$30,500 to \$191,378. Approximately 12% of the student population qualifies for the free or reduced lunch program. The composition of the student body shows that there is a majority of white students (91.8%), however other races represented among the student body including African Americans (1.5%) and Asians (5.5%). Religious traditions encompass Christian, Jewish, Muslim, Ba’ Hai, and other religious beliefs.

There are 124 full-time and two part-time faculty members at the high school. The teachers represent a wide range of experienced staff members with over 20 years of experience to beginning teachers with less than 5 years of experience. (See Table 1) The majority of teachers (58%) have earned a master’ degree in education. An increasing number of less experienced teachers are currently involved in post-baccalaureate work to add additional content areas to their certificates, or to earn a master’s degree. Several of

the teachers are also involved in pursuing certification in school administration and doctoral degrees.

Fox Chapel Area High School (FCAHS) has been recognized at the local, state, and national levels for educational excellence. It was twice named a National Blue Ribbon School as well as being recognized as a National School of Excellence. The school is often contacted by other districts throughout the state and country because of its high academic performance, its placement of graduates at the most competitive universities in the nation, and for its creativity in non-traditional scheduling. FCAHS is a comprehensive high school. It offers a rigorous college preparatory program as well as business, fine arts, technology education, and vocational programming. Approximately 89.8% of FCAHS 2006 graduates will attend 2-year or 4-year colleges and other post-secondary institutions.

Table 1

Teacher tenure comparing FCAHS and FCASD

|       | Less than 5 years | 5-15 years | 16 – 25 years | 26+ years | Avg. years |
|-------|-------------------|------------|---------------|-----------|------------|
| FCASD | 85                | 208        | 66            | 74        | 13.50      |
| FCAHS | 12                | 82         | 12            | 20        | 13.07      |

As additional background, it should be noted that the Fox Chapel Area High School is typically a very high-achieving school as measured by numerous standardized test results and college acceptance criteria. Fox Chapel is often used as a model for effective instructional practice and as an example of superior student achievement despite its socio-economic diversity. Scores on the Pennsylvania System of School Assessment (PSSA) test traditionally range in the upper 80% to lower 90% in both reading and

writing proficiency and mid- to upper 60% in mathematics proficiency. Scholastic Aptitude Test (SAT) data demonstrate that students score well above state and national averages.

Fox Chapel Area High School operates under a 4X4, flexible semester block schedule. Typically, teachers at the high school teach three of four periods during the day with the fourth period maintained as an 80-minute planning period. During the year teachers will teach six periods. One advantage of the flexible block schedule is the greater variety of scheduling options available to its students.

### Key Terms

In order to provide a consistent perspective of the various terms related to this study, the following list is provided as a foundation for understanding:

- Action research – The process through which an individual identifies an area of inquiry, formulates a research question and engages in a systematic examination of that question as it relates to his/her professional practice. The process includes the formulation of a guiding question, data gathering, observation, analyzing data, developing an action plan, modifying instruction, examining results of the modification, and reporting back to colleagues.
- Reflection/reflective practice – The process through which an educator examines his/her professional practice in order to improve upon instructional delivery. Reflection on a specific aspect of delivery occurs over an extended period of time, not simply on an isolated event. This may or may not be considered action

research depending on the extent to which a more formal process is used as described in the definition of action research.

- Teacher inquiry – For the purposes of this research, teacher inquiry is synonymous with action research.
- Guiding question – This refers to the specific area of interest identified by a professional educator. It is the informal equivalent of a research hypothesis.
- PEP – This is the acronym for the Professional Education Program course as implemented at Fox Chapel Area High School. The course is offered during an entire academic semester, five days per week, 80 minutes per day for teachers who are enrolled as students.

#### Professional Education Program (PEP) course defined

In 2001, a planning team consisting of the high school principal, two teachers, the superintendent of schools, and secondary curriculum coordinator conceptualized the Professional Education Program. The original intent of the program was to identify the skills necessary for teachers to fully and effectively use educational technology to enhance classroom instruction. A secondary outcome of the program was to integrate technology into other professional requirements placed on teachers including grading systems, computerized submission of grades, email capability to communicate with parents and members of the faculty, and appropriate use of the internet as an instructional tool. Because of the time demands already placed on teachers, a creative approach to offering the program was devised to deliver the course as part of the professional responsibilities during the workday. Only by demonstrating proficiency in the

technologies taught would a professional educator be issued a laptop computer for instructional purposes and access the technology addressed in the PEP program.

Through the innovation of the block schedule and the commitment of the Board of School Directors, teachers were able to have their schedules adjusted to participate in the PEP program during the school day. The PEP course was offered in a three-year cycle to provide teachers the necessary technical skills to assure the appropriate use and implementation of the educational technology. This meant that teachers involved in PEP would teach 5 periods a year (3 one semester, 2 the opposite semester). In the semester in which teachers taught only two periods, they were also enrolled as PEP students. (See Table 2) This was considered their sixth period of professional responsibility for the year. The faculty was split into three cohorts and then subdivided into fall and spring semester groups.

Table 2

Sample teacher schedules of a teacher enrolled in the PEP program and a teacher who is not enrolled.

Teacher 1

| Semester | Period 1            | Period 2  | Period 3            | Period 4    |
|----------|---------------------|-----------|---------------------|-------------|
| Fall     | Business Essentials | PEP       | Business Essentials | Plan        |
| Spring   | Marketing           | Marketing | Plan                | Advertising |

Teacher 2

| Semester | Period 1  | Period 2     | Period 3     | Period 4     |
|----------|-----------|--------------|--------------|--------------|
| Fall     | Algebra I | Plan         | Algebra I    | Algebra I    |
| Spring   | Plan      | Trigonometry | Pre-calculus | Trigonometry |

Note: Planning periods and PEP periods may occur during any of the four scheduled class periods.



In the first three-year cycle, teachers learned software applications such as PowerPoint, Excel, iMovie, Photoshop, advanced Word operations, email, Internet applications, and others. Teachers developed technology goals that were connected to the supervision model for the district. Within the three-year cycle, year one was established as the instructional year, year two was an implementation year, and year three of the process was designed to be a refinement and reflection year.

During the third year of the first PEP cycle, the program was studied to determine the impact it had on the professional relationships and sense of professionalism faculty members had after completing the course. This original study was not designed to evaluate the effectiveness of instruction nor the degree to which classroom instruction changed. The focus of the study was on the degree to which a professional learning community was being established. The results of that study suggested that common time for teachers to meet and discuss educational issues, and to learn together within the professional environment of the school built strong relationships among staff and fostered a professional and collaborative culture within the high school.

Nearing the conclusion of the first cycle of the PEP course, high school and district personnel began to reshape the focus of professional development within the high school. Having accomplished the established goals for enhancing technology proficiency among staff members, the focus began to turn toward classroom instruction. Given current trends in education, action research was identified as a potential staff development protocol in which to engage faculty members.

Again following a three-year plan, the PEP program was structured to rotate cohorts of faculty from various curricular areas through action research cycles. The goal,

in part, was to give teachers the working knowledge of how to engage in action research as a means to examine classroom practices on an ongoing basis. The elements of the plan included a learning phase, an action plan/implementation phase, and a data-gathering/reflection phase.

At the present, the PEP program is in its final year of the second cycle. Throughout the action research cycle, teachers are provided information defining action research. As part of their instruction, they read *How to Use Action Research in the Self-Renewing School* (Calhoun, 1994) and *A Short Guide to Action Research* (Johnson, 2005), as well as numerous journal and research articles. The model used within the PEP course is based on Johnson's (2005) work and includes the cyclical approach of identifying a guiding question, developing a plan, collecting data, analyzing and interpreting data, developing an action plan, sharing findings, and identifying a new guiding question or extension. Infused within this process are elements of reflection and group discussion to enhance the research and learning opportunities of the cohorts of teachers. This process leads to individuals enrolled in the PEP program developing goals and an area of instructional practice upon which to focus.

This rededication of professional time within the Fox Chapel Area School District supports the foundational work of Hodgkinson (1957) when he asserted:

The procedure, however, known as "action research" does have so much to commend it that one might well hope to see a time when school staff members would spend a part of each school day in that kind of activity as a regularly scheduled phase of school work. (p. 137)

This is further supported in more recent work of Pugach & Johnson (1990). They elaborate in part:

Reflection is not likely to be a natural outgrowth of a system in which time is an unavailable resource to classroom teachers. In our studies of peer collaboration to date, it is clear that time is one of the critical elements in the reflective process. Reflection is unlikely to take place unless the conditions of work are adapted to support its occurrence. (p. 205)

Further support for ongoing and job embedded professional development can be found in Dennis Sparks foreword to Guskey (2000) when he asserts, “a significant portion of the staff development that will lead to improved student learning should occur every day on the job among teams of teachers” (Foreword, p. X).

In addition, the collaborative nature of action research models is advantageous to the staff development efforts. As Fetting (1999) offers:

Learning is most effective when individuals become personally engaged in the learning process, and engagement is most likely to take place when there is a need to learn. Learning is also more likely to take place in a collaborative activity and in a context relevant to the learner. (p. 26)

This also supports the need for teachers to actively share in their learning and discovery of information in the form of data. The essence of action research is not to keep the information and insights locked in a vacuum, but to share and discuss this information with colleagues.

Because of the ability to offer the program as an ongoing, job-embedded course, other school districts, universities, and education professionals commend the PEP

program as a unique and truly innovative program. Despite this commendation and validation, the course itself is not without its practical challenges. Assigning teachers to be enrolled in the course is connected to student enrollment, course schedule demand, and other issues related to staffing and school calendar. It should not be surprising that these practical challenges were also identified by Sparks in his foreword to Guskey (2000, pg. X).

It has been possible to manage the challenges mentioned above. Student course demand is determined in mid-spring, which then enables the principal and department chairpersons to determine the extent to which each academic department is able to participate in PEP. In most departments, at least one teacher per department has been eligible for the course each semester. In some departments including mathematics and art, enrollment has been limited because of teaching demands.

Experience over the previous five years of the PEP program has demonstrated that each class period should have between 5 and 8 teacher-researchers in order to maintain a manageable group while assuring rich discussion from multiple, professional perspectives. This number allows for multiple teacher perspectives to shape and enrich the discussion. It also allows for a critical mass of individuals to offer potential solutions to action research topics.

In addition to the need of assuring a sufficient number of participants, physical space and resources are also necessary for the PEP program to be conducive to meaningful learning as is supported by Michel's (2005) research on elements of effective professional development. This was exemplified in the first wave of the PEP program in which teachers received specific training in the use of educational/instructional

technology through the application of software programs and integrating laptop computers as an instructional tool. A dedicated classroom space has been arranged for the program. This area has been maintained throughout the course of the 6 years of the program. There is physical space designated for traditional classroom presentations, small group discussions, and individual work areas. The technology that supports the program includes a television, videocassette recorder, video camera, overhead projector, SmartBoard, LCD projector, laptop and desktop computers, and a teacher presentation station to assist with presentations by the instructors and participants. Because most of these resources existed prior to initiation of PEP, the only significant expenditures for which a budget was created were for the purchase of the SmartBoard and video camera.

The above description of the Professional Education Program enumerates the key principles of adult learning as previously discussed. The structure and organization of the PEP program compliment Terehoff's establishment of the adult learning principles:

- (a) setting up an environment for adult learning; (b) involving adult learners in mutual planning; (c) attending to the adult learners' needs and interests; (d) involving adult learners in setting the program's goal and objectives; (e) involving adult learners in designing an effective program; (f) involving adult learners in implementing the program; and (g) involving adult learners in the program's evaluation. (p. 70)

The final principle provides for the purpose of this investigation.

Through investigating the pervasiveness of similar models throughout the nation, this researcher has yet to identify a similar program and has determined the PEP program as organized at Fox Chapel Area High School as being rare, if not one of a kind. Other

staff development programs do have non-traditional methods of delivering professional development to its faculty and some contain various elements of the PEP program, but none contain all of those elements. While some schools use action research as the vehicle to deliver staff development, and others make use of extended time during the course of a school year, a thorough search for a similar program including dedicated time embedded into the daily routine of teachers for the duration of an entire semester has yet to be uncovered and written about in the professional literature.

To date, a formal evaluation of the PEP program as it is focused on action research has not been completed. Additionally, the program has not been evaluated as to the effectiveness of meeting goals related to teacher improvement, student achievement, and teacher efficacy issues. A closer examination of changes in instructional practice and the outcome of those changes as it relates to better student learning would contribute to the existing knowledge base and help to validate the National Staff Development Council Standards on professional development. It is also in the school district's interest to closely examine the outcomes of the program as evidenced by sustained and meaningful changes in teaching practices by teachers who have completed the action research course. It is imperative to examine student achievement as reported by classroom teachers. This will contribute to the existing dearth of information in the literature related to the impact of sustained, systemic, and job-embedded professional development on student achievement.

## CHAPTER 3

### METHODS

#### Introduction

This study examined a specific professional development program model in place at a suburban high school using the Standards Assessment Inventory (Appendix A) and the Professional Development Survey (Appendix A) in order to evaluate the program's effectiveness. The utilization of two survey instruments and one questionnaire were used to yield data in order to validate the model that was in place in an effort to contribute to the current dearth which exists in the research literature pertaining to job-embedded professional development. The interview questionnaire was intended to contribute additional information related to teacher perceptions of improvements to student learning and classroom performance.

#### Participants

The participants of the study were those professional educators who had completed the Professional Education Program course since the school year 2004-05 (N=70) and who were currently employed at the Fox Chapel Area High School. The participants represented a range of years of experience in education and represented each academic and elective department included at the high school. There was a balance of males to females. Given the lack of ethnic diversity of the teaching faculty, ethnicity was not a factor through which to compare data. Participation in this study was on a voluntary basis with appropriate measures taken to assure anonymity in compiling data results.

Participants were free to complete any or all of the three instruments used but were encouraged to complete all three. Of the faculty members still employed at Fox Chapel Area High School, approximately 70 professional educators completed the PEP course and were asked to participate in this research study.

### Setting

The Fox Chapel Area School District is located approximately 12 miles north of Pittsburgh, Pennsylvania. It is an independent public school system that has been incorporated since 1957. The district serves six distinct municipalities and approximately 4500 students attend the school district grades Kindergarten through grade 12. The Fox Chapel Area School District employs approximately 450 professional educators in 4 elementary schools (K-5), one middle school (6-8), and one high school (9-12). The district consists of mainly white, middle- to upper-middle class families although there is a wide range of socio-economic diversity among municipalities. The school district has enjoyed a long tradition of academic success and is very progressive in school initiatives and school reform efforts.

### Instrumentation

The National Staff Development Council (NSDC) has already established an instrument through which to evaluate professional development. This survey instrument examines various aspects of professional development through the Standards Assessment Inventory (SAI). The NSDC used this instrument in various pilot studies and has established validity and reliability of the instrument. Reliability was established through



the utilization of Cronbach's alpha in three pilot studies. In the three pilot studies an alpha score of .98 was established in each case. Subscale reliability was also established with varying levels of reliability ranging from .71 to .92. The NSDC also established construct, criterion-related, and content validity in three separate pilot studies with positive results.

A different study was performed by Lowden (2005) using the Professional Development Questionnaire in the state of New York. This survey instrument identifies very specific, contextual information that will benefit this researcher and contribute to the existing literature through specific targeting of the PEP program. Lowden's survey was adapted from a fellow researcher. The original survey was reviewed by a jury of experts including a curriculum and instruction expert, college professors, teachers and Professional Development Committee members (Lowden, 2005). Additionally according to Lowden's (2005) dissertation, "Data from this group of experts was combined with the research literature as an aid in developing the survey. The jury of experts established face and content validity" (p. 41).

The Lowden survey on professional development was distributed via hardcopy to all of the teachers in the high school who were enrolled as a Professional Education Program (PEP) participant over the previous three years (2004-05, 2005-06, 2006-07). Surveys were distributed to 69 professional educators, 43 of whom responded resulting in a response rate of 62.3%. Within the cohorts, 18 teachers responded from the 2004-05 cohort yielding a 66.7% cohort response rate, 11 teachers from the 2005-06 cohort responded resulting in a 40.7% cohort response rate, and 14 teachers responded from the 2006-07 cohort providing a 93.3% cohort response rate. All of the surveys were legible,

easily interpreted, and responses clearly marked. Some teachers completed the demographic and background information contained in the first pages of the survey even though they were instructed to begin the survey at question 8. In this case, the front pages were removed by a third party so no attempt could be made or assumed of the respondent's identity.

The PEP teachers were asked to complete the survey as an evaluation of the Professional Education Program. When completing the survey, teachers were asked to replace the phrase "professional development" with the phrase "Professional Education Program" in order to focus the evaluation instrument on the PEP program itself and not district-wide or other professional development opportunities. The surveys were returned to the high school's guidance department and placed in the respective boxes according to cohort year.

Each survey instrument is based on a five point Likert scale. The Standards Assessment Inventory (NSDC) uses the following notation: 0 = Never, 1 = Seldom, 2 = Sometimes, 3 = Frequently, 4 = Always. Section two of the Professional Development Survey (Lowden) uses the following notation: Strongly Agree, Agree, No Opinion, Disagree, and Strongly Disagree. These responses were assigned a number value similar to that of the SAI as follows: Strongly Agree = 4, Agree = 3, No Opinion = 2, Disagree = 1, and Strongly Disagree = 0. In order to accurately reflect the intent of the research and to avoid misunderstandings of the program to be evaluated, the phrase "professional development" was changed to "Professional Education Program (PEP)" and the term "school district" was changed to "high school."

The survey data were then entered into SPSS version 13.0 for Mac software program. The cohorts were numerically coded to reflect the year in which teachers were enrolled as PEP students. The code “45” was assigned to the 2004-05 cohort, the code “56” was assigned to the 2005-06 cohort, and the code “67” was assigned to the 2006-07 cohort. As discussed previously, the responses of “strongly disagree,” “disagree,” “no opinion,” “agree,” and “strongly agree” were assigned number values from 0-4 respectively on a Likert scale for data entry. Each of the question numbers 8 through 50 and the responses were entered in SPSS.

Descriptive statistics including mean and standard deviation were run on each of the questions as individual cohorts and as a cumulative total. Additionally, analysis of variance (ANOVA) was conducted on the data to compare responses between and among cohorts to determine whether the cohorts evaluated the PEP program similarly. Alpha levels were set at the .001 level for determining statistical significance.

It is important to examine not only the quantitative impact of action research as demonstrated through teacher perceptions of student achievement, but also the cultural impacts that action research can have on individual classrooms and the entire high school faculty. The intent of the interview questionnaire was to determine remaining investigations such as teacher perceptions of student achievement, to what degree action research is sustained in an educator’s practice after exiting the formal PEP course, and how and to what extent PEP teachers changed their instructional strategies. Table 3 is a table establishing the alignment of the standard interview questions to the research questions. As a result, this research will be useful in contributing and adding to the existing literature on effective models of professional development.

### Procedure

Three distinct cohorts of teachers, identifiable by school year, completed or were currently enrolled in the PEP program. The Lowden survey instrument, cover letter, and explanation of the research study were placed in an 8.5 X 11 inch envelope with a color-coded return envelope inside. The SAI was made available to respondents via online format. Those teachers who completed the PEP course during the 2004-05 school year received red return envelopes, those completing the course during the 2005-06 school year received blue return envelopes, and those who completed the program during the 2006-07 school year received yellow return envelopes. This packet was placed in the mailbox of each cohort member. An email was sent to cohort members informing them that a survey packet had been placed in their mailbox. The email encouraged their participation in this research project and invited them to an informational meeting to be conducted in the Large Group Instruction room of the high school. This meeting permitted the primary researcher to clarify the project and answer any additional questions about the study.

Table 3

Alignment of the research questions to the standard interview protocol questions.

| Research questions                                                                                                                 | Interview questions |
|------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1. As a result of participating in action research through PEP, have teachers made changes to their daily delivery of instruction? | Number 7            |
| 2. To what degree was data from action research used to inform teacher practices (Process Standard)?                               | Numbers 3, 4, 5, 7  |

|                                                                                                                                                                                                    |                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| 3. To what extent has the Professional Education Program been successful in preparing educators to apply research to decision making that directly impacts their classrooms (Process Standard)?    | Numbers 2, 5, 7                                                                                              |
| 4. To what extent has the use of action research as the conduit of professional development deepened teachers' understanding of content knowledge and instructional strategies (Content Standard)? | Number 7                                                                                                     |
| 5. To what degree does the Professional Education Program align to the National Staff Development Council Standards?                                                                               | This research question applies to the NSDC survey instrument and is not addressed by the interview protocol. |

Upon completion of the surveys, the respondents were asked to place the surveys in the enclosed envelope and return it to the secretary in the guidance office. The guidance office was used because this suite of offices is removed from the high school office thus lessening the likelihood of the primary investigator observing who had completed a survey. As the respondents returned the survey instruments, they were asked if they would like to participate in the interview portion of the study. Those respondents who agreed provided their name, email address, telephone extension, and requested time for the interview on a separate sheet of paper that was maintained by the guidance secretary. From these sheets, also separated by cohort and color-coded, 15 respondents from each cohort were to be randomly selected by an independent interviewer to participate in the interviews. The interviewer was to determine the random selection process such as every (third) person, random drawing, or similar method. However, only seven individuals agreed to be interviewed. The interviews occurred at mutually agreed upon times between the interviewer and the respondent. Respondents were permitted to utilize their planning time for this purpose or a time before or after school. Additional

attempts were made to encourage PEP participants to submit to the interview protocol without success

Survey instrument packets were distributed on a Monday. At the beginning of the day, the primary researcher sent group emails to each of the cohorts informing them of survey distribution. On Wednesday and Friday of the same week and for the following two weeks, reminder emails were sent encouraging participation. As additional incentive to complete the surveys, gift certificates to area restaurants and coffee shops were made available in the guidance office for those who submitted a completed survey.

The interviews were conducted by an independent interviewer in a dedicated, private space in the district administrative offices. The interviewer was not currently employed by the Fox Chapel Area School District and was not a member of the dissertation committee. The interviewer met with the primary researcher in order to clarify the interview questions and for the primary researcher to provide direction as to how to approach follow-up questions to yield quality information. The interviews of the PEP teachers were audio recorded by the independent interviewer and then transcribed by a person other than the primary researcher. During transcription all identifiers including names, titles, or other unique characteristics were left omitted in the transcribed record. Upon completion of transcription, the audiotape was erased.

The timeline for data collection was established at approximately 1.5 months. The first two cohorts (2004-05 and 2005-06) were asked to complete the surveys in May 2007. Interviews were scheduled in June 2007. The current cohort (2006-07) fall semester participants were asked to participate within this timeframe as well, but the spring semester PEP participants were not able to complete the surveys nor submit to the

interview protocol until June 2007. This spring cohort was comprised of a small number of participants (approximately 6).

### Statistical Analyses

Demographic data was coded and analyzed to provide a profile of the respondents to the survey. These data were used as a means for future comparison and analysis with other professional development models of this type.

All survey data was coded and analyzed via SPSS version 13.0 for Macintosh platforms. Analyses were performed utilizing mean, median and standard deviations of survey items. In order to allow for comparisons between and among the three cohorts of respondents, a series of analysis of variance (ANOVA) were performed on each of the instruments. ANOVAs were performed for like-item analysis and, where appropriate, on individual questions. To control for the large number of analyses of variance performed, the individual alpha ( $\alpha$ ) was set at .001 (.05/50) using the Bonferroni technique. This produced a familywise error rate of .05.

### Limitations

While intended as a comprehensive program evaluation, this research study had the following limitations:

1. This research study was conducted in a suburban high school. Demographic profiles of both the student population and faculty may be vastly different in other school settings. Urban and rural school settings may provide their own unique characteristics that may impact these research results.

2. Resources were plentiful although not unlimited in this setting. This school had the benefit of providing technology supports for both students and staff. Additionally, the benefit of staff development time had been incorporated into the daily schedule of the teaching staff. In other school systems, the absence of these resources may be a potential barrier to planning and implementation.
3. The primary investigator was also the high school principal. Despite the assurance of anonymity and other measures, it may have been possible that the faculty respondents showed bias in their responses based on perceived uses of this data or with respect to the personal/professional relationship to the researcher.
4. The identified school is a high school consisting of grades nine through twelve. It provides only a limited aspect of public education and does not address specific issues that may exist in middle school and/or elementary settings. These settings may again provide peculiarities unique to those settings.
5. The survey was conducted with a limited number of respondents. Only those teachers who had successfully completed the PEP program within the previous three school years were included in the study. This population did not represent 100% of the high school faculty.
6. This study was limited to teacher perceptions. While the validity and reliability of the survey instruments had been established, teachers were self-reporting the data. Additionally, the teachers themselves were asked to show evidence of the improvements in student learning in the interview portion of the study. There was not necessarily a connection between or among research questions/topics of interest chosen by teachers thus making standardized reporting measures difficult.



Teachers' perceptions may also have been influenced by their own satisfaction with the research project and/or the implementation of a new strategy.

### Summary

This chapter described a professional development program that shows promise as a potential national model for staff development in schools. The structures that are in place and the methods used will be evaluated against established survey instruments. Of additional importance to this evaluation is the impact the program has had on creating a culture of using action research as a protocol to enhance classroom experiences for students. Additionally, teacher perceptions of improvements in student achievement will be an important measure in determining the program's overall effectiveness.

## CHAPTER 4

### RESULTS

This investigation examined the program effectiveness of the Professional Education Program (PEP) in a suburban, Pittsburgh high school. The program is a job embedded professional development course to which teachers are assigned in a rotating, three-year cycle as a part of their teaching responsibilities. Two survey instruments were used to a) determine the degree to which the PEP program adheres to the National Staff Development Council's (NSDC) standards via the Standards Assessment Inventory and b) to determine the extent to which it has influenced the daily instructional practice of the teachers using Lowden's (2005) Professional Development Questionnaire.

A total of 43 individuals responded to the Lowden survey while only 42 responded to the SAI online survey. The reason for this difference cannot be explained. Similarly, the total number of responses within the Lowden survey occasionally fluctuated on items from 41 to 43. Participants left some of the responses blank. Again, a clear explanation of why certain items were not answered cannot be explained without further inquiry.

#### Standard Assessment Inventory - Descriptive Data

The Standard Assessment Inventory (SAI) was presented to 69 professional educators in an online format. Of the 69 individuals, 42 teachers responded to the request resulting in a response rate of 61%. Teacher responses were then subdivided according to the year in which they were enrolled as a PEP participant. This method was used to

gather data regarding the sustainability of action research as a recurring practice in the lives of professional educators and to evaluate how each iteration of the PEP program adhered to national standards. A total of 27 teachers had been assigned to the 2004-05 cohort from which 18 teachers responded to the survey. This yielded a response rate of 67% for the 2004-05 cohort. The 2005-06 cohort was comprised of 27 individuals, 12 of whom responded to the survey. The response rate for the 2005-06 cohort was 44%. Finally, 12 of the 15 teachers enrolled in the 2006-07 cohort responded to the SAI yielding a response rate of 80%.

Table 4

Response rates of the PEP teachers assigned by cohort.

|                | Number assigned<br>to PEP | Number<br>responded to<br>Survey (N) | Response Rate |
|----------------|---------------------------|--------------------------------------|---------------|
| 2004-05 Cohort | 27                        | 18                                   | 67%           |
| 2005-06 Cohort | 27                        | 12                                   | 44%           |
| 2006-07 Cohort | 15                        | 12                                   | 80%           |
| Total          | 69                        | 42                                   | 61%           |

The SAI is designed to assess the degree to which a program adheres to the Content, Process, and Context Standards of the NSDC. Each of the three standards categories is subdivided into more specific standards. Context Standards include Learning Communities, Leadership, and Resources. The Process Standard includes Data-driven, Evaluation, Research-based, Design, Learning, and Collaboration Standards. The Content Standard addresses Equity, Quality Teaching, and Family Involvement.

Five questions aligned with each of the standards were asked of each respondent on a 0 – 4 Likert scale as described in Chapter Three. Data analysis according to each

standard and standard category was conducted and the results follow. Descriptive statistics were used to interpret the data as well as a series of analyses of variance (ANOVAs) to compare results among the cohorts.

### Context Standard Category

The Context Standards are designed to assess the effectiveness of the context in which professional development occurs. These standards address the environment, administrative support, and allocation of resources to provide for a successful experience.

Learning Community. The Learning Community standard is focused on determining the degree (frequency) to which a school or faculty interacts on a professional level to improve instruction and instructional practice. Survey data revealed a rating across all cohorts of 2.0 (“sometimes”) in this standard area. The area of greatest strength within this standard as outlined by the questions was the amount of opportunities beginning teachers have to interact with more experienced faculty (2.9). Whole staff opportunities (1.7) and items related to peer observation (1.8), gathering feedback after peer observation (1.8), and examining student work (1.8) rated as lower areas of emphasis. Within the Learning Community Standard no statistical significance was determined to have occurred thus demonstrating that each cohort received a similar experience in PEP related to Learning Communities. Significance values ranged from .38 to .68. Refer to Table 5.

A total of 18 respondents from the 2004-05 cohort responded to the survey and produced a mean score of 1.9 for the Learning Communities section. The range of scores on the 5 questions pertaining to Learning Communities varied from 1.5 to 2.8. The

questions are structured around the amount of time and opportunity for teachers to share information about teaching in general. Teachers in this cohort identified receiving feedback from colleagues after an observation lowest at 1.5. Survey data revealed that teachers identify the ability of beginning teachers to work with more experienced staff as a frequent occurrence (2.8). Response rates within the Learning Communities area were 100%.

Similarly, the 2005-06 cohort rated Learning Communities at a mean score of 2.1 overall. Scores ranged from 1.6 to 3.1 on the various questions. Again, teachers identified the ability of beginning teachers to collaborate with more experienced staff as the highest (3.1) while they identified sharing information related to classroom observation feedback (1.8) and observing classrooms (1.7) as lower reporting areas. Teachers in this cohort identified sharing information related to improving teaching as a whole staff at 1.6. The response rate for this category in this cohort ranged from 83% (10 respondents) to 100%.

Table 5

Survey results for the Learning Communities Standard of the SAI.

|                                        | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|----------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 9                                    | 1.9                                   | 1.6                                   | 1.5                                   | 1.7                           | .44          |
| Q 29                                   | 1.6                                   | 1.7                                   | 2.0                                   | 1.8                           | .63          |
| Q 32                                   | 2.8                                   | 3.1                                   | 2.8                                   | 2.9                           | .68          |
| Q 34                                   | 1.5                                   | 1.8                                   | 2.0                                   | 1.8                           | .38          |
| Q 56                                   | 1.7                                   | 2.1                                   | 1.7                                   | 1.8                           | .55          |
| Learning<br>Communities<br>Mean totals | 1.9                                   | 2.1                                   | 2.0                                   | 2.0                           |              |

The 2006-07 cohort had a response rate on each item of the Learning Community standard ranging from 92% (11 responses) to 100%. The opportunity for beginning teachers to learn from more experienced staff again rated highest (2.8) within the standard. Whole staff discussions (1.5), discussions about student work (1.7), and information related to peer observation (2.0) were rated lower by this cohort.

Leadership. The Leadership Standard examined the focus of the building leadership to help in staff development needs of the faculty. This area of the Context Standards was rated as a 2.3 (between “sometimes” and “frequently”) overall on the 0-4 scale. Among the strongest ratings across cohorts, the principal is seen as emphasizing teacher learning (3.1), fostering a culture of improvement (2.5), and providing teachers with opportunities to improve (2.4). The building administration (principal) was rated at 1.7 for the ability to seek faculty input on issues and at 1.9 for being described as empowering.

Within the Leadership Standard, no statistical significance was determined to exist among the cohorts as is demonstrated by the range of statistical significance (F-values) .22 to .70 using ANOVA. (See Table 6.) The lack of statistical significance demonstrates that each of the respective cohorts evaluated the Leadership Standard consistently after having completed the PEP course.

Leadership was rated by the members of the 2004-05 cohort as a 2.5 on the 0-4 scale. Scores ranged in this category from 1.8 to 3.3. Among areas rated higher was the ability of the principal to encourage improved instruction (2.6), improved learning by staff (3.3), and building a culture for improvement in instruction (2.7). This cohort

identified faculty input (1.9) and empowerment (1.8) issues as areas in need of improvement.

Results of the 2005-06 and 2006-07 cohorts replicate that of the overall ratings and that of the 2004-05 cohort. The principal is seen to emphasize teacher learning (2.9 and 2.8 respectively), fosters a culture of improvement (2.3 and 2.6), and provides improvement opportunities for staff (2.3 and 2.4). Similarly, the administration is seen as less influential with respect to empowerment (1.7 and 2.2) and gathering faculty input (1.3 and 1.9).

Table 6

Survey results for the Leadership Standard of the SAI.

|                           | 2004-05<br>Cohort<br>Mean<br>(n = 18 ) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|---------------------------|----------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 1                       | 3.3                                    | 2.9                                   | 3.0                                   | 3.1                           | .57          |
| Q 10                      | 1.9                                    | 1.3                                   | 1.9                                   | 1.7                           | .22          |
| Q 18                      | 2.6                                    | 2.3                                   | 2.4                                   | 2.4                           | .70          |
| Q 45                      | 2.7                                    | 2.3                                   | 2.6                                   | 2.5                           | .56          |
| Q 48                      | 1.8                                    | 1.7                                   | 2.2                                   | 1.9                           | .66          |
| Leadership<br>Mean totals | 2.5                                    | 2.1                                   | 2.4                                   | 2.3                           |              |

Resources. The Resource Standard addresses personnel and materials issues from a standpoint of having adequate staff or replacement staff to cover classes and offer assistance in professional development as well as the physical resources necessary to make improvements. This standard was rated at 2.4 overall by all three cohorts. Areas of strength are related to the availability of academic/peer coaches to assist in instructional practice (2.8), the ability for teachers to learn about technology (2.5), and creativity in

addressing personnel and resource needs (2.4). Substitute issues for covering classes (2.2) and the allocation of resources related to school goals (2.1) were areas rated lower within this category.

Statistically significant differences were not determined to exist among the three cohorts in how they evaluated the Resource Standard. Refer to Table 7. This finding demonstrates that a consistent approach to staffing and resource issues was used during the three years of the action research cycle of PEP according to teacher perceptions. The Resource Standard was rated the highest of the three standards within Context Standard Category.

Table 7

Survey results for the Resource Standard of the SAI.

|                         | 2004-05<br>Cohort<br>Mean<br>(n =18 ) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|-------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 2                     | 3.0                                   | 2.8                                   | 2.7                                   | 2.8                           | .65          |
| Q 11                    | 2.4                                   | 2.6                                   | 2.4                                   | 2.5                           | .91          |
| Q 19                    | 1.9                                   | 1.9                                   | 2.7                                   | 2.2                           | .15          |
| Q 35                    | 2.4                                   | 2.3                                   | 2.5                                   | 2.4                           | .90          |
| Q 49                    | 2.2                                   | 1.8                                   | 2.4                                   | 2.1                           | .22          |
| Resources<br>Mean Total | 2.4                                   | 2.3                                   | 2.5                                   | 2.4                           |              |

Survey responses across cohorts result in similar findings. Areas of relative strength are identified as teachers being available to assist in implementing new practices (3.0, 2.8 and 2.7), the ability to learn about instructional technology (2.4, 2.6, and 2.4), and creativity in dealing with human and material resources (2.4, 2.3, and 2.5). An area of relative weakness according to the responses of the 2004-05 and 2005-06 cohorts is



with respect to the availability of substitutes to cover classes in their absence (1.9 and 1.9). The 2006-07 cohort rated this area as a 2.7, which would be seen as a relatively strong area. It should be noted that the 2006-07 cohort is a smaller group of professionals. The size of this group may have had some influence on the amount of substitutes needed to cover other classes should these teachers have been requested to miss class for additional staff development reasons.

### Process Standards Category

This category is directed at the actual implementation of staff development programs in a school setting. As the name implies, it is related to the process through which a school or school system selects and applies professional development for its staff.

Data-Driven. Within the Process Standards Category, the Data-Driven Standard addresses issues related to the use of student data to shape instruction, choose professional development, and assess student learning. Overall, the Data-Driven Standard was rated at 2.4 (“sometimes”/“frequently”) among the cohorts. The analysis of classroom data to shape instruction was consistently rated as the lowest area within this standard (1.7, 2.2, and 2.2 respectively). Among the highest areas within this standard, learning how to use student data and using student data to evaluate professional development rated at 2.7 and 2.5 in the 2005-06 cohort and 2.6 and 2.9 in the 2006-07 cohort. Using student data in discussions about instruction was also rated high among all cohorts ranging from 2.4 to 2.8.

There was no statistical difference determined in the way in which each cohort evaluated the Data-Driven Standard. Significance was approached,  $F(41) = 5.316$ ,  $p = .009$ , related to the use of student achievement data by teachers to evaluate professional development but fell short.

Table 8

Survey results for the Data-Driven Standard of the SAI.

|                           | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|---------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 12                      | 2.6                                   | 2.7                                   | 2.6                                   | 2.6                           | .96          |
| Q 26                      | 2.2                                   | 2.7                                   | 2.9                                   | 2.6                           | .01          |
| Q 39                      | 2.2                                   | 2.5                                   | 2.6                                   | 2.4                           | .37          |
| Q 46                      | 2.4                                   | 2.5                                   | 2.8                                   | 2.5                           | .41          |
| Q 50                      | 1.7                                   | 2.2                                   | 2.2                                   | 2.0                           | .27          |
| Data-Driven<br>Mean Total | 2.2                                   | 2.5                                   | 2.6                                   | 2.4                           |              |

Evaluation. The Evaluation Standard was rated at 2.2 (“sometimes”) overall by the three cohorts. Multiple sources are used to evaluate the professional development within this school as was determined by the 2.7 rating on the 0-4 scale. All three cohorts individually identified this as an area of strength as well.

The allocation of time established to discuss what was learned from professional development, the evaluation of professional development to determine future opportunities, and student performance to determine the success of professional development were all seen as areas of relative weakness. There were no statistically significant differences determined for the Evaluation Standard. Refer to Table 9.

Table 9

Survey results for the Evaluation Standard of the SAI.

|                          | 2004-05<br>Cohort<br>Mean<br>(n = 18 ) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|--------------------------|----------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 3                      | 1.8                                    | 2.4                                   | 2.5                                   | 2.2                           | .13          |
| Q 13                     | 2.4                                    | 2.9                                   | 2.9                                   | 2.7                           | .09          |
| Q 20                     | 1.7                                    | 2.1                                   | 2.3                                   | 2.0                           | .29          |
| Q 30                     | 1.9                                    | 2.1                                   | 2.2                                   | 2.0                           | .74          |
| Q 51                     | 1.6                                    | 2.6                                   | 1.8                                   | 2.0                           | .02          |
| Evaluation<br>Mean Total | 1.9                                    | 2.4                                   | 2.4                                   | 2.2                           |              |

Research-based. The nature of being a research-based initiative is the target of the Research-Based Standard of the SAI. This standard was rated as the second highest standard according to the PEP cohorts. The overall mean value in this category of 2.6 demonstrates the cohorts' recognition that professional development opportunities are selected by the district for being based in educational research. The cohorts rate this item as 2.6, 3.1, and 3.1 respectively. Items related to student performance in other schools, effectiveness in other schools, and gains in student achievement in other schools also rate high as determined by cohort means. The item that rated lowest addressed selecting a program that has been used in schools similar to this school. Scores ranged from 1.9 to 2.3 in this area. With respect to the Research-Based Standard, statistical significance was not achieved at the .001 level.

Table 10

Survey results for the Research-Based Standard of the SAI.

|                                  | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 4                              | 2.6                                   | 3.1                                   | 3.1                                   | 2.9                           | .13          |
| Q 14                             | 2.3                                   | 2.6                                   | 2.8                                   | 2.6                           | .21          |
| Q 21                             | 2.4                                   | 2.3                                   | 2.9                                   | 2.5                           | .15          |
| Q 36                             | 2.5                                   | 2.5                                   | 2.9                                   | 2.6                           | .41          |
| Q 41                             | 1.9                                   | 2.2                                   | 2.3                                   | 2.2                           | .39          |
| Research-<br>Based Mean<br>Total | 2.3                                   | 2.6                                   | 2.8                                   | 2.6                           |              |

Design. The Design Standard addresses how professional development is planned and is delivered within a school. Are teachers' past experiences accounted for, is it based on clearly defined outcomes, and is it a part of the school's improvement plan are all questions that influence this standard. The composite mean rating in this area was a 2.3 overall. Each cohort identified professional development as being part of improving the system. Cohorts rated this as 2.9 overall with scores by cohort ranging from 2.8 to 3.1. Combining strategies is also seen as an area of strength and influence with ratings of 2.6, 2.9, and 2.5.

Although the 2004-05 cohort rated defining teacher and student outcomes as a design feature lower than the other cohorts, it is still seen as a relatively strong area. This cohort rated the design feature as 2.1 while the 2005-06 cohort and 2006-07 cohort rated this area as 2.8 and 2.6 respectively. This rating may be influenced by program

refinements over the course of a three-year period. Course modifications and revisions to the PEP program may have had an impact on the course expectations for subsequent cohorts to the 2004-05 school year.

Table 11

Survey results for the Design Standard of the SAI.

|                      | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|----------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 15                 | 2.6                                   | 2.9                                   | 2.5                                   | 2.7                           | .43          |
| Q 22                 | 2.1                                   | 2.8                                   | 2.6                                   | 2.5                           | .12          |
| Q 38                 | 2.8                                   | 2.8                                   | 3.1                                   | 2.9                           | .76          |
| Q 52                 | 1.9                                   | 2.2                                   | 1.8                                   | 2.0                           | .98          |
| Q 57                 | 1.5                                   | 1.4                                   | 1.6                                   | 1.5                           | .92          |
| Design<br>Mean total | 2.2                                   | 2.4                                   | 2.3                                   | 2.3                           |              |

The category which rated lowest among the Design Standards is related to the school keeping a program in place long enough to see if gains in student performance can be realized. The overall rating from the respondents was 1.5, which was indicative of the 1.5, 1.4, and 1.6 ratings by the individual cohorts. Despite these results, statistical significance among the cohorts could not be determined for the Design Standard as is depicted in Table 11.

Learning. The Learning Standard is aimed at gathering evidence of teacher learning as well as opportunities to select professional development opportunities and to practice them in their daily instruction. Overall this category was rated at 2.3 by the cohorts. Teacher choice in professional development was seen as the area most in need of

improvement according to the survey. The rating of 1.6 was reflective of the 1.5, 1.8, and 1.5 mean scores by the respective cohorts. The cohorts did, however, rate practicing new skills and the variety of methods used to address professional development as strengths of the PEP program as is characterized by the range of mean scores from 2.6 to 2.9 and 2.4 to 2.9 respectively. The amount of support teachers receive in implementing new skills and the promotion of deep understanding received overall ratings of 2.2 and 2.4.

Within this standard, significance was approached on question 27 addressing the promotion of deep understanding. Although an alpha of .001 was not met, further exploration of this concept may be needed to examine the variance in responses. Statistically significant differences in the evaluation of the Learning Standard did not occur at the .001 level (see Table 12).

Table 12

Survey results for the Learning Standard of the SAI.

|                        | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 5                    | 2.9                                   | 2.9                                   | 2.6                                   | 2.8                           | .68          |
| Q 16                   | 2.1                                   | 2.0                                   | 2.4                                   | 2.2                           | .42          |
| Q 27                   | 2.0                                   | 2.5                                   | 2.8                                   | 2.4                           | .04          |
| Q 42                   | 2.5                                   | 2.4                                   | 2.9                                   | 2.6                           | .36          |
| Q 53                   | 1.5                                   | 1.8                                   | 1.5                                   | 1.6                           | .75          |
| Learning<br>Mean Total | 2.2                                   | 2.3                                   | 2.4                                   | 2.3                           |              |

Collaboration. The Collaboration Standard addresses issues related to the entire staff working together to improve instruction and student achievement. The lowest rating in this category was with respect to the school being able to provide common planning

time for its staff. The cohorts rated this area from 1.7 to 2.2. The areas of relative strength in this category are related to the staff's ability to work together and the school's administration encouraging shared responsibility to achieve goals. These areas rated as 2.3 to 2.5 on the Likert scale. As with other standard areas within the Process category, statistical significance at the .001 could not be established among the cohorts.

Table 13

Survey results for the Collaboration Standard of the SAI.

|                             | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|-----------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 6                         | 2.4                                   | 2.3                                   | 2.5                                   | 2.4                           | .79          |
| Q 23                        | 1.8                                   | 1.7                                   | 2.2                                   | 1.9                           | .47          |
| Q 28                        | 2.6                                   | 2.1                                   | 2.9                                   | 2.5                           | .20          |
| Q 43                        | 2.4                                   | 2.1                                   | 2.3                                   | 2.3                           | .67          |
| Q 58                        | 2.1                                   | 1.9                                   | 2.4                                   | 2.1                           | .66          |
| Collaboration<br>Mean total | 2.3                                   | 2.0                                   | 2.5                                   | 2.3                           |              |

#### Content Standard Category

The Content Standards are designed to address the professional development program itself. Applying these standards provides feedback related to equity issues, communication with stakeholders (parents), and the quality of the experience as it relates to teachers' perceptions of the applicability of the professional development to the classroom experience for students and themselves.

Equity. The Equity Standard is focused on the relationships that are established between students and teacher and the expectations that teachers have for their students. This standard was rated the highest of all 12 standards on the SAI. The overall rating

revealed a mean of 2.8. Adjusting instruction to meet the needs of all learners, treating learners from all backgrounds the same, displays of respect, and high expectations from all teachers for all students each rated 2.7 and 3.3 among all cohorts. The area of greatest need appears to be related to teachers receiving staff development related to students being at different levels of learning in the same classroom. The 2005-06 cohort rated this as the lowest at 1.7, while 2004-05 rated it at 1.9 and 2006-07 rated the category as 2.1. Statistical significance was not found at the .001 level among the cohorts.

Table 14

Survey results for the Equity Standard of the SAI.

|                      | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|----------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 24                 | 2.9                                   | 3.1                                   | 3.0                                   | 3.0                           | .79          |
| Q 33                 | 3.0                                   | 3.1                                   | 3.3                                   | 3.1                           | .54          |
| Q 37                 | 2.9                                   | 2.7                                   | 3.7                                   | 2.9                           | .34          |
| Q 44                 | 3.0                                   | 2.8                                   | 2.9                                   | 2.9                           | .86          |
| Q 59                 | 1.9                                   | 1.7                                   | 2.1                                   | 1.9                           | .64          |
| Equity<br>Mean total | 2.8                                   | 2.7                                   | 2.9                                   | 2.8                           |              |

Quality. Instructional strategies and conversation about assessment and instruction are the focus of the Quality Teaching standard. The composite score from the three cohorts rated this at a mean of 2.5. The areas of strength as demonstrated by this survey are related to the modeling of instructional techniques within professional development as well as using research-based instructional strategies. These two areas were rated by each cohort as the highest in the category. Gaining a deep understanding of the content that teachers teach was rated as the lowest. Mean scores ranged from 2.0 to



2.2 among the cohorts. Learning about student assessment and administrators' ability to engage teachers in conversations related to pedagogy fell into the middle of the ranges (2.2 – 2.4). Again, there were no statistically significant findings in the way in which each cohort responded to this standard.

Table 15

Survey results for the Quality Teaching Standard of the SAI.

|                                   | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|-----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 7                               | 2.0                                   | 2.2                                   | 2.2                                   | 2.1                           | .84          |
| Q 17                              | 2.5                                   | 2.8                                   | 2.8                                   | 2.7                           | .49          |
| Q 25                              | 2.8                                   | 3.0                                   | 3.0                                   | 2.9                           | .57          |
| Q 54                              | 2.1                                   | 2.6                                   | 2.4                                   | 2.4                           | .40          |
| Q 60                              | 2.1                                   | 2.2                                   | 2.4                                   | 2.2                           | .66          |
| Quality<br>Teaching<br>Mean total | 2.3                                   | 2.6                                   | 2.6                                   | 2.5                           |              |

Family Involvement. Family Involvement is the final of the Content Standards addressed in the SAI. This category focuses on a school's ability to communicate with families about instruction, student achievement, the school's mission and building relationships. This standard was rated as 2.2 on the Likert scale but communicating the district's mission was rated high at 2.6. Each cohort evaluated this area as an area of strength related to the Family Involvement standard. Each of the four remaining questions related to this standard addressing family involvement, teachers being involved in assisting families, and building relationships with the community all rated 1.8 and 2.2

throughout all cohorts. The 2005-06 cohort actually identified working with families to support student learning at home as a relative strength at 2.5. A future and more detailed examination of the guiding/research questions asked by these professionals during the scope of their own research may reveal information as to why this was the case. A statistically significant difference was not found among the cohorts in their evaluation of the Family Involvement Standard.

Table 16

Survey results for the Family Involvement Standard of the SAI.

|                                     | 2004-05<br>Cohort<br>Mean<br>(n = 18) | 2005-06<br>Cohort<br>Mean<br>(n = 12) | 2006-07<br>Cohort<br>Mean<br>(n = 12) | Total<br>PEP Mean<br>(N = 42) | Significance |
|-------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-------------------------------|--------------|
| Q 8                                 | 1.9                                   | 1.8                                   | 2.0                                   | 1.9                           | .83          |
| Q 31                                | 2.7                                   | 2.7                                   | 2.6                                   | 2.6                           | .97          |
| Q 40                                | 1.9                                   | 2.0                                   | 2.3                                   | 2.1                           | .42          |
| Q 47                                | 2.1                                   | 2.0                                   | 2.3                                   | 2.1                           | .88          |
| Q 55                                | 1.9                                   | 2.5                                   | 2.2                                   | 2.2                           | .21          |
| Family<br>Involvement<br>Mean total | 2.1                                   | 2.2                                   | 2.3                                   | 2.2                           |              |

#### Standard Assessment Inventory – Summary

The Standard Assessment Inventory (SAI) revealed notable data about the PEP program and its implementation within the high school studied. The SAI was useful in gathering data about the design, implementation and evaluation of program effectiveness. Of the twelve standards discussed above, the use of the SAI identified five general areas of relative weakness. Those standards areas are: Learning Communities, Evaluation, Design, Collaboration, and Family Involvement. Each of these areas was assessed to be

at the middle of the 0-4 Likert scale. Similarly, several areas of relative strength were determined. These areas included the Equity, Research-Based, Quality Teaching, and Data-Driven standards.

### Lowden's Professional Development Questionnaire – Descriptive Data

The Lowden survey is divided into 6 general categories of responses for evaluation. The first category is focused on logistics and affective information related to teacher perceptions of professional development (in the case of this study, the PEP program). The second category addresses conceptual knowledge, skills and instructional practice improvements. The third category examines cultural implications related to providing a positive work environment. The fourth category asks for feedback related to how a teacher implements changes in the classroom following professional development. The fifth category is designed to elicit feedback regarding student abilities and achievement as a result of the professional development a teacher may encounter. The sixth category, and the final section of the survey, is designed to gather data relating to teachers' attitudes and beliefs.

### Category 1

As previously discussed, the first subsection of the Lowden survey gathers data regarding teacher impressions of staff development related to logistical and affective information such as the non-threatening nature of professional development, meeting teacher needs, and time issues. Statistical analyses including ANOVA and descriptive statistics were conducted on the survey results. Means of the total group (N=43) of PEP

teachers in this category ranged from 3.10 to 3.33. Further examination of the means when analyzed by cohort finds the 2004-05 cohort reporting the lowest comparative mean scores (2.94 – 3.29) and the 2006-07 cohort typically responding the highest (3.21 – 3.50) according to each question. While no statistically significant difference could be determined at the .001 level among cohorts, the responses to this series of questions (numbers 8 – 13) do show that the PEP program is generally well received with respect to time issues and meeting the needs of teachers.

Table 17

## Professional Development Questionnaire – Category 1

|      | 2004-05<br>cohort mean<br>(n = 18) | 2005-06<br>cohort mean<br>(n = 11) | 2006-07<br>cohort mean<br>(n = 14) | Total<br>PEP Mean<br>(N = 43) | Significance |
|------|------------------------------------|------------------------------------|------------------------------------|-------------------------------|--------------|
| Q 8  | 2.94                               | 3.36                               | 3.21                               | 3.14                          | .31          |
| Q 9  | 3.18                               | 3.27                               | 3.50                               | 3.31                          | .49          |
| Q 10 | 3.29                               | 3.27                               | 3.43                               | 3.33                          | .84          |
| Q 11 | 2.94                               | 3.00                               | 3.36                               | 3.10                          | .36          |
| Q 12 | 3.00                               | 3.27                               | 3.36                               | 3.19                          | .38          |
| Q 13 | 2.94                               | 3.27                               | 3.43                               | 3.19                          | .09          |

Category 2

This series of questions addresses new knowledge and theory behind the PEP program, specifically action research. Again a trend was recognized when comparing mean scores of the cohorts one to another. The 2004-05 cohort rated this category lower overall when compared to the other cohorts. The 2006-07 cohort responded with the highest of the mean scores ranging from 3.21 to 3.50. Statistical significance was not determined to have occurred at the .001 level.

Table 18

## Professional Development Questionnaire – Category 2

|      | 2004-05<br>cohort mean<br>(n = 18) | 2005-06<br>cohort mean<br>(n = 11) | 2006-07<br>cohort mean<br>(n = 14) | Total<br>PEP Mean<br>(N = 43) | Significance |
|------|------------------------------------|------------------------------------|------------------------------------|-------------------------------|--------------|
| Q 14 | 3.17                               | 3.27                               | 3.36                               | 3.26                          | .80          |
| Q 15 | 3.24                               | 3.27                               | 3.43                               | 3.31                          | .75          |
| Q 16 | 3.00                               | 3.36                               | 3.21                               | 3.17                          | .39          |
| Q 17 | 3.12                               | 3.36                               | 3.50                               | 3.31                          | .33          |

Category 3

This set of responses collects data related to the cultural impact of professional development as well as the positive recognition it receives by various stakeholders including teachers, administrators, parents, and the school board. Means ranged from 2.19 to 3.40 in this category. According to the range of means, the area of greatest difference was related to the importance with which people viewed the PEP program.

Survey information revealed that teachers felt the school board and parents did not view the program as favorably as building level administrators or PEP teachers themselves as is characterized by mean scores of 2.19 for both school board and parents compared to a mean of 3.19 for the teachers as a combined cohort. Also of note, PEP teachers rated the value that district administrators placed on the program was also low (M = 2.51). Despite this range in mean scores between and among cohorts, statistically significant differences among responses at the .001 level could not be determined.

Table 19

## Professional Development Questionnaire – Category 3

|       | 2004-05<br>cohort mean<br>(n = 18) | 2005-06<br>cohort mean<br>(n = 11) | 2006-07<br>cohort mean<br>(n = 14) | Total<br>PEP Mean<br>(N = 43) | Significance |
|-------|------------------------------------|------------------------------------|------------------------------------|-------------------------------|--------------|
| Q 18  | 2.94                               | 3.09                               | 3.21                               | 3.07                          | .68          |
| Q 19  | 2.72                               | 2.82                               | 3.07                               | 2.86                          | .55          |
| Q 20  | 3.28                               | 3.45                               | 3.50                               | 3.40                          | .67          |
| Q 21  | 3.22                               | 3.27                               | 3.50                               | 3.33                          | .57          |
| Q 22a | 2.22                               | 2.09                               | 2.21                               | 2.19                          | .90          |
| Q 22b | 2.67                               | 2.09                               | 2.64                               | 2.51                          | .23          |
| Q 22c | 3.00                               | 2.91                               | 2.93                               | 2.95                          | .96          |
| Q 22d | 2.72                               | 2.36                               | 2.64                               | 2.60                          | .69          |
| Q 22e | 3.06                               | 3.27                               | 3.29                               | 3.19                          | .69          |
| Q 22f | 2.06                               | 2.36                               | 2.23                               | 2.19                          | .27          |

Category 4

Changes in instructional approach are important to track after participating in or conducting professional development. This fourth category of Lowden's survey is designed to examine the changes that teachers make in instructional approach after having participated in a professional development program. Questions 23 to 27 examine this aspect of what teachers do to change instruction after having participated in professional development.

The teachers in all three cohorts combined did express a change in teaching practice as a result of having participated in the PEP course. Specifically, the teachers agree with the survey questions related to implementing, experimenting with and noting positive changes in their teaching. Mean scores in this reporting category ranged from 2.93 to 3.33 overall.

Table 20

## Professional Development Questionnaire – Category 4

|     | 2004-05<br>cohort mean<br>(n = 18) | 2005-06<br>cohort mean<br>(n = 14) | 2006-07<br>cohort mean<br>(n = 11) | Total<br>PEP Mean<br>(N = 43) | Significance |
|-----|------------------------------------|------------------------------------|------------------------------------|-------------------------------|--------------|
| Q23 | 3.11                               | 3.36                               | 3.57                               | 3.33                          | .22          |
| Q24 | 3.11                               | 3.36                               | 3.50                               | 3.30                          | .36          |
| Q25 | 2.89                               | 3.09                               | 3.21                               | 3.05                          | .58          |
| Q26 | 3.00                               | 3.09                               | 3.50                               | 3.19                          | .18          |
| Q27 | 2.67                               | 3.09                               | 3.14                               | 2.93                          | .32          |

A trend was also noted here that the 2004-05 cohort rated each question lowest according to mean scores with each subsequent cohort rating each question higher. While these means were not determined to have statistical significance at the .001 level, these increases in mean should be noted.

Category 5

This series of questions is designed to examine the impact of specific staff development on student achievement. Questions within this section focus on student engagement, student achievement, classroom management, and students taking ownership of their own learning. Mean scores in this category are among the lowest in the survey.

Means ranged from 2.29 to 3.21 on the various measures. It is worth noting that while each cohort identified a positive impact on student learning as a result of the PEP program, each cohort rated student achievement on state and district assessments as the lowest in this reporting category. The teachers did, however, rate student achievement on

classroom assessments higher than on state and district assessments. This may be attributed to the nature of the action research question that focused on a specific aspect of the teacher's classroom or content area. Statistical significance within this reporting category was not determined among the cohorts.

Table 21

Professional Development Questionnaire – Category 5

|      | 2004-05<br>cohort mean<br>(n = 17) | 2005-06<br>cohort mean<br>(n = 11) | 2006-07<br>cohort mean<br>(n = 14) | Total<br>PEP Mean<br>(N = 42) | Significance |
|------|------------------------------------|------------------------------------|------------------------------------|-------------------------------|--------------|
| Q 28 | 3.12                               | 3.27                               | 3.29                               | 3.21                          | .76          |
| Q 29 | 2.82                               | 2.64                               | 2.93                               | 2.81                          | .65          |
| Q 30 | 3.00                               | 3.09                               | 3.21                               | 3.10                          | .75          |
| Q 31 | 2.88                               | 3.00                               | 3.00                               | 2.95                          | .90          |
| Q 32 | 2.53                               | 2.73                               | 2.57                               | 2.60                          | .84          |
| Q 33 | 2.12                               | 2.36                               | 2.43                               | 2.29                          | .48          |
| Q 34 | 2.59                               | 2.55                               | 2.86                               | 2.67                          | .55          |
| Q 35 | 2.76                               | 3.09                               | 2.79                               | 2.86                          | .60          |

Category 6

Measuring teachers' attitudes and beliefs is the focus of this final category of the Lowden survey. Teachers were asked a series of questions related to their effectiveness and efficiency as a teacher, positive impacts on students, becoming empowered as a result of the program, and the feeling of pride, among others, associated with completing the program.

While no statistical significance could be determined among the cohorts, it is interesting to note that as the program progressed from the 2004-05 school year to the 2006-07 school year, mean scores within this reporting category kept increasing



throughout almost every area examined. The mean scores that rated lowest within Category 6 were related to impacts on yearly ratings, recognition and positive feedback. Areas receiving the highest ratings were related to the meaningfulness of the program ( $M = 3.43$ ), the sense of pride experienced during the process ( $M = 3.38$ ), and learning practical strategies to become a more efficient and productive teacher ( $M = 3.38$ ).

Table 22

## Professional Development Questionnaire – Category 6

|      | 2004-05<br>cohort mean<br>(n = 17) | 2005-06<br>cohort mean<br>(n = 11) | 2006-07<br>cohort mean<br>(n = 14) | Total<br>PEP Mean<br>(N = 42) | Significance |
|------|------------------------------------|------------------------------------|------------------------------------|-------------------------------|--------------|
| Q 36 | 3.24                               | 3.36                               | 3.71                               | 3.43                          | .19          |
| Q 37 | 3.24                               | 3.45                               | 3.50                               | 3.38                          | .54          |
| Q 38 | 3.24                               | 3.27                               | 3.64                               | 3.38                          | .23          |
| Q 39 | 3.00                               | 3.27                               | 3.57                               | 3.26                          | .16          |
| Q 40 | 2.94                               | 3.64                               | 3.50                               | 3.31                          | .07          |
| Q 41 | 2.65                               | 3.00                               | 3.43                               | 3.00                          | .09          |
| Q 42 | 2.71                               | 2.91                               | 3.21                               | 2.93                          | .20          |
| Q 43 | 2.53                               | 2.73                               | 3.07                               | 2.76                          | .21          |
| Q 44 | 2.82                               | 2.91                               | 3.50                               | 3.07                          | .06          |
| Q 45 | 2.71                               | 3.09                               | 3.43                               | 3.05                          | .06          |
| Q 46 | 2.24                               | 2.27                               | 2.93                               | 2.48                          | .06          |
| Q 47 | 2.41                               | 2.45                               | 2.71                               | 2.52                          | .69          |
| Q 48 | 2.41                               | 2.27                               | 2.86                               | 2.52                          | .33          |
| Q 49 | 3.06                               | 3.45                               | 3.71                               | 3.38                          | .05          |
| Q 50 | 3.06                               | 3.18                               | 3.29                               | 3.17                          | .72          |

Lowden's Professional Development Questionnaire – Summary

To summarize the results of the Lowden survey, teacher perceptions of the PEP Program indicate a positive experience. Teachers report via the survey that their time was

used wisely and the program met individual needs. Additionally, teachers responded that they gained valuable insights and new knowledge because of their collaborative work in the action research environment. Teachers perceived that they had made positive changes in their methodology despite little acknowledgement of their work by administrators. Survey results also indicate that teachers rate the experience in PEP more favorably than administrators and parents.

### Interview Questions

The initial intent of this research was to determine not only the impact of action research as a professional development tool but also to examine the impact action research has on student achievement. A series of seven questions related to the National Staff Development Council standards were constructed to determine teacher perceptions of student achievement.

Upon completing the online and hard copy surveys, PEP teachers were asked to sign up for a 30 minute interview in order to answer questions related to student achievement. It was determined that a minimum of 30 teachers (10 per cohort) were needed to gather sufficient data in determining the impact this program has had on student achievement. Only seven teachers in total from the cohorts responded to the interview request. Due to this low number of responses, analyses of the data were not completed, however, the transcripts of each interview are listed in the Appendix E for anecdotal review.

### Summary

The data suggest teachers involved in the Professional Education Program had a positive experience. The results of the two surveys are consistent in revealing a similar experience for teachers regardless of the year in which teachers were PEP participants. This suggests that the program was delivered in a consistent manner and that each cohort was subject to a similar professional development experience.

While areas of weakness and strength have been identified, professional development in general and the application of action research specifically appear to be meeting teachers' needs based on these teacher perceptions. Sufficient data regarding student achievement was not available to address the more specific topic of impacts on student achievement itself.

## CHAPTER 5

### DISCUSSION

#### Introduction

The focus of this study was to ascertain if a specific job-embedded professional development model in place in a suburban high school was effective in delivering professional development as was assessed based on teacher perceptions. This model does appear to show promise as a beginning template of a model to be emulated in other areas of public education across the country based on the results of this program evaluation. The Professional Education Program course was designed, in part, to provide teachers with the requisite skills to study a topic of interest in order to improve their own instructional practice through action research. The ultimate outcome was to establish a clear connection between using action research as a staff development model to refine instructional practice resulting in increases in student achievement. A lack of suitable evidence and a common definition of student achievement measures to establish the link between professional development and student achievement prevented this assertion from being thoroughly investigated. This research was informed by the vast body of professional literature related to professional development design and action research but attempted to inform the literature with specific information related to the design and implementation of this program and teacher perceptions of gains in student achievement. To that end, the following discussion of the research hypotheses is necessary.

Hypothesis One: There will be significant changes in instructional practice as a result of teachers completing the Professional Education Program course as reflected in the questionnaires and standard interview questions.

As evaluated using Lowden's (2005) Professional Development Questionnaire respondents to the survey agreed that changes in instructional practice occurred. In each of the five question areas related to instructional practice, each cohort affirmed that new strategies have been explored and implemented and that specific positive changes have occurred in their delivery of instruction. This assertion reaffirms the work of Huberman (1996) when he elaborates on the immediacy of teacher research being conducted to adjust instruction in a timely manner. This finding also supports the position of Norlander-Case, Reagan, and Case (1999) in which they state the goal of action research is in the promotion of "positive change in a specific context" (p. 43). These findings related to pedagogy also support Sagor's (2000) belief that the primary goal of action research is to improve or refine the actions of the classroom teacher.

Regarding the sustainability of the PEP program and, specifically, action research as a staff development tool, the mean scores of the three cohorts progressively increased with each iteration of the program. The first cohort (2004-05) to engage in the action research cycle rated this item (question 27) lower than the remaining cohorts ( $M = 2.67$ ). The 2006-07 cohort rated making long lasting changes to instructional practice as the highest ( $M = 3.14$ ). The data suggest that the use of action research will continue in the future as a feasible and practical tool to improve instruction. As a note of caution, this increase in the mean of each cohort may also be interpreted that as time passes, the likelihood of maintaining action research as a reflective and investigative instructional

tool may fade. In order to affirm this assumption, further longitudinal study of each cohort may be necessary.

Hypothesis Two: There is significant alignment between the goals and structure of the Professional Education Program and the 12 standards of the National Staff Development Council.

The obvious measure of this question was the Standard Assessment Inventory. As discussed previously, several areas of strength and weakness were determined through the administration of the SAI. Areas of relative strength included the Equity, Research-Based, Quality Teaching, and Data-Driven standards. Areas of weakness were determined to exist with respect to the Learning Communities, Evaluation, Design, Collaboration, and Family Involvement standards.

The above results suggest that teachers in this environment do have equal access to resource and programs for staff development. Additionally, teachers' perceptions affirm that the district structures staff development opportunities on research-based programs that focus on making data-driven decisions about classroom instruction. The data related to quality teaching also suggest that attention to improved teaching and teacher behavior from a pedagogical standpoint is vital to effective instruction.

The data also indicate that additional attention needs to be paid to evaluating and designing future programs. Greater attention to the intentional design and goal setting for program evaluation purposes will provide a more thorough roadmap for planning and conducting effective professional development. Refining these areas will also better define outcomes for the teachers who are engaged in the professional development

programs to be offered. Similarly, more collaboration and the involvement of additional stakeholders such as parents may prove to be of benefit when establishing future programs. This aspect of program design will provide a more accurate picture of expectations of all individuals who will benefit from continued professional learning. This school would also benefit from establishing a closer connection between and among faculty as it relates to establishing closer working communities of learners. The interaction of faculty within and between academic departments will enhance the learning and teaching capacity of the entire professional staff.

The NSDC Standards were not consulted prior to the design and implementation of the PEP program. This would explain the lack of a thorough evaluation system based on intended goals and outcomes. Similarly, the structure of the program could have been designed to help the school form stronger links among the faculty in order to establish learning communities within the school fostering increased collaboration among staff and to strengthen the design of the program. Despite some areas of acknowledged strength, there is not a significant alignment of the PEP program to the National Staff Development Council Standards.

The future use of the PEP program within the Fox Chapel Area High School is currently in question. If the means to continue to offer the program in this format continue, specific alignment of the staff development to the NSDC standards would prove beneficial in order to clearly articulate the goals and objectives and in establishing specific evaluation criteria. As a result of applying the SAI to this program evaluation, it is strongly recommended that future programs be aligned to the standards for more thorough understandings of the accomplishments of those endeavors. Application of the

standards will also lend a more consistent and uniform approach to comparing, evaluating and analyzing programs for overall effectiveness.

The strength of the PEP program, however, is supported by many of the design characteristics as established by the NSDC and NCRTL. Regarding professional development design, the NSDC (2005) has established that one-day workshop approaches do not provide the impact on teachers that is necessary for them to make significant and long-lasting changes in pedagogy. The job-embedded nature of the PEP program supports the earlier establishment of the NSDC's Standards for Staff Development Revised (2001) by addressing the needs of the faculty involved, becoming a tool used within the school system, and providing the necessary collaboration that is needed for teachers to capitalize on one another's expertise. These standards also suggest that as much as 25% of a teacher's time be dedicated to collaborating with other teachers (NSDC, 2001, p.12). Teachers assigned to the PEP program spend one-quarter of their time in professional development during the semester in which they are a participant. Similarly, NCRTL (1995) emphasizes the need for teachers to have time during the school day to examine goals, apply new strategies, and study the impact of the changes. This aspect of the program design does show attention to the standards despite not having used the NSDC Standards as a design guide of PEP.

Previous research performed by Darling-Hammond and McLaughlin (1995) advocate for this design in delivering professional development as well. In their article in *Phi Delta Kappan* they establish the need for a professional development program to engage teachers in specific tasks, provide collaboration among peers, emphasize



reflection and inquiry, link to teacher's work, and be intensive, long-lasting, and sustained (p. 598).

The alignment of the design of the PEP program to the standards established in the professional literature through the NSDC, NCRTL and others supports the merit of the program. Additionally, the teacher responses to the survey instruments, the SAI in particular, suggest that this staff development program is mindful of what has been established as effective professional development.

Hypothesis Three (a): Following the completion of the Professional Education Program course, there is a greater likelihood for teachers to use data as a means to continually inform instruction (Process Standard).

This hypothesis is based on the Process Standard category of the SAI related to the Data-Driven Standard. The overall mean score for this standard is 2.4 on the 0-4 Likert scale. In examining the means of the questions related to this standard, a general trend can be seen in the scores increasing over the duration of the PEP program. Specifically, question 26 of the SAI focuses on the use of data on student achievement by teachers to evaluate the impact of professional development. The 2004-05 cohort reported that this is done "sometimes" ( $M = 2.17$ ) while the 2006-07 cohort viewed the use of data being used "frequently" ( $M = 2.92$ ). The implication is that, based on student data, the professional development had a positive impact on instructional practice. Interestingly, this question also approached statistical significance with an alpha of .009. Although falling shy of the significance level ( $p = .001$ ), it is important to note this difference. This separation may be attributed to the current focus of using data, supported by new

software and online programs, to inform instruction that was not as pervasive in this high school prior to the 2006-07 school year thus resulting in the higher rating among this cohort. Currently, teachers have been receiving instruction and applying the use of EdInsight, On Hand Schools, the Grow Network, and benchmark assessments such as 4Sight to gather student achievement data with the purpose of adjusting pedagogy. This emphasis began during the 2006-07 school year and may have had a strong impact on teacher responses to this question. Previously these tools were not available to teachers and the emphasis was not as pervasive as it was during this final cohort. Additional longitudinal data conducted beyond the scope of this investigation may provide additional data on this perception of a growing trend. This also suggests an increasing use of data to inform daily instruction. This data, therefore, suggests that teachers are using data to a greater extent especially among the most recent cohort.

Although the Professional Development Questionnaire (Lowden, 2005) did not specifically address the use of data, questions 14, 15, 42, and 45 address new skill development, reaching the needs of every student, and having a positive impact on student achievement. These questions are directly connected to the action research initiative at this high school and should be considered. Questions 14 and 15 focus on addressing new knowledge and skills as well as practical instructional strategies. These questions were evaluated between the “agree” and “strongly agree” categories as is demonstrated by the respective means of 3.26 and 3.31. These data do suggest that the PEP program had a positive impact on teachers’ skills and practices.

Question 42 focused specifically on meeting the needs of all students within the same classroom. The nature of the PEP course using action research was to address these

issues of meeting every student's needs. Question 42 yielded a mean of 2.93 overall among all cohorts yet a steady increase in the mean was experienced from year one to year three of the program. This demonstrates an additional focus of action research designed to improve classroom instruction as a goal to meet all students' needs.

Question 45 addresses the gains in student achievement. Also following a similar trend, the 2006-07 cohort rated this the highest with a mean of 3.43, which was an increasing trend over three years from a mean of 2.71 in the first year of the program. Although an argument can be made about the use of data to increase student achievement and that the 2006-07 cohort was impacted the most positively, caution needs to be maintained when looking at this data. "Student achievement" was not clearly defined for the cohorts leaving the interpretation to the teachers whether this was to include classroom achievement, standardized test of achievement, or both. As the research questions posed by the PEP teachers largely influenced classroom-based assessments, further study of standardized and achievement test scores may be needed.

These findings do suggest that teachers are becoming increasingly aware of the impact data has on instruction. Faculty discussions and numerous faculty trainings are led by administrators and teachers alike as to using statistical information to make adjustments in the delivery of instruction. Teachers are asked on a regular basis to use the available tools as previously mentioned to build snapshots of their students and classes in order to more effectively address areas of weakness according to numerous achievement measures. Additionally, common course and common assessment meetings are held at which teams of teachers discuss score results and learn about best instructional practices from one another. While it is not within the scope of this study to focus directly on the

use of data, gathering information about instructional practice is an essential step in the action research process. As suggested, further inquiry should be made into using data specifically to drive instructional practice. A study, for example, focusing on the use of student data provided by the administration of the benchmark assessment 4Sight and student achievement on the PSSA would potentially yield results examining changes in instructional practice. Additional studies comparing proficiency scores between and among school that do or do not use the 4Sight examination or other benchmark assessment may suggest evidence regarding the applicability of these programs on student achievement.

Hypothesis Three (b): Following the completion of the Professional Education Program course, there is a greater likelihood for teachers to apply research in making decisions about classroom instruction (Process Standard).

This hypothesis is most closely evaluated by the questions related to the Quality Teaching Standard of the SAI. This standard was rated as the second highest area by the cohort respondents. Specifically, question 17 addresses modeling behaviors learned in the PEP program to what will be used in the classroom. Of the respondents to the survey, nearly 84% of the teachers felt that the professional development presented sometimes or frequently models strategies that they would use in their classrooms and 11% felt this occurred always.

This sentiment suggests that teachers value the structure of the program as a strategy to be emulated within the classrooms. The PEP program was designed to provide teachers with practical solutions to classroom assessment issues. Teachers now express

that these same strategies have tremendous applicability to daily practice. These results also suggest that action research will continue to be utilized within classrooms with the purpose of providing constant feedback to inform instruction. This form of modeling allows teachers to learn the process as a student (participant) and then apply it as a professional educator to the classroom environment.

These findings contradict Hodgkinson's (1957) early attempts to refute action research as an effective tool because of the propensity of action research to lead to teacher stagnation in their professional and pedagogical growth. It does, conversely, support the assertion of Noffke (1996) that action research is "an on-going process, an inherent part of teaching" (p. 316). In addition to Noffke's work, the literature is rich in others who support these findings. Among the more prominent of these researchers, Sagor (2000), Johnson (2005), Glanz (1998), the NSDC and others provide data which suggest that action research facilitates changes in instructional approaches based on the individual nature of the research questions asked. The data from this investigation further support these assertions in a specific setting in the Fox Chapel Area High School. These data suggest that teachers involved in PEP have learned about the application of action research becoming an ingrained behavior inherent in effective teaching. The modeling referred to in the PEP program provides evidence that teachers must be continually reflecting on their practice and asking questions about how to improve for the students' benefit. Additionally, the data gathered about students is constantly changing. Applying the same approach to instruction regardless of the changes that occur in data (and the students themselves) is not consistent with the basic tenets of action research – constant and on-going data gathering, reflection and refinement.

Hypothesis Three (c): Following the completion of the Professional Education Program course, there is a greater likelihood that teachers will come to a better understanding of effective instructional strategies and make improvements in their content knowledge.

The Professional Development Questionnaire addresses this in the fourth category (questions 23 – 27) of the survey as well as in questions 38 and 39. The fourth category related to the impact on instruction was rated overall between “agree” and “strongly agree” by each cohort. Question 26 (noting positive changes in teaching) was most indicative of this area and had a resulting mean score of 3.19 overall. Teachers who have completed the PEP program also see themselves as more effective teachers. This is evidenced by the high rating of question 38 related to effective teaching as 3.38 and speaks to the teacher efficacy issues as is found throughout the literature as an outcome of action research.

Teachers also support this improvement in content knowledge and instructional strategies in their view of seeing themselves as more efficient and productive, having yielded a 3.26 mean on question 39. These results provide evidence that teachers are better able to identify possible solutions to educational dilemmas they may experience in the classroom. Having the ability to ask questions and identify possible solutions on their own enables educators to be productive with their time without the need to conduct exhaustive research outside of the classroom. The collaborative nature of the PEP program further enables teachers to seek the advice of other professional educators with less apprehension of being viewed negatively by staff members.

The Standard Assessment Inventory addresses the content knowledge enhancement through question 7 on the survey. PEP respondents rated this as a mean of 2.1 overall, which equates to professional development sometimes leading to better enhanced content knowledge. Accordingly, school leaders will need to focus more attention on designing professional development to not only improve overall teaching techniques but also to provide opportunities for specific content knowledge enhancement.

These results provide support for Noffke's (1996) belief that some of the main benefits of action research are related to "greater self-knowledge and fulfillment in one's work, a deeper understanding of one's own practice, and the development of personal relationships through researching together" (p. 306). Through developing guiding questions and having the ability to establish an area of intense focus, teachers in the PEP program have a self-identified and vested interest in conducting research. The entire basis of the program is to identify an area of necessary investigation based on one specific dilemma or question that originates in the teacher's classroom. This ability to identify for one's self the area of study creates the necessary buy-in that is essential when considering professional development. Additionally, teachers cultivate relationships with one another throughout the given semester by sharing thoughts and ideas, assisting one another in the development of an action research project, and through peer observation opportunities that may otherwise not be possible. This collaboration across disciplines that enables teachers to focus on both content and pedagogy would be difficult, if not impossible, to replicate in other more traditional professional development settings. Objective research questions also enable teachers to learn about the own practice by filtering out subjective data and by looking for strong evidence in support of student achievement. The program

is established as a learning opportunity and the professional educators are not evaluated on the “success” of their research project or based on results. These findings related to self-knowledge, efficacy issues, and professional relationships are vital to establishing a culture of continued improvement and success. Building the capacity of the staff to engage in meaningful and supportive dialogue is essential to making system-wide changes and establishing a program as part of the school’s culture.

### Limitations of the Study

This study focused on a suburban high school known for its plethora of resources. While resources are not unlimited, this school manages fiscal resources in a manner that makes staffing opportunities abundant and flexible. The ability to schedule staff in creative formats helps in the facilitation of creative programs. These results and the specific model used may not be able to be replicated in other districts that do not enjoy such opportunities.

Faculty members who were not enrolled in the PEP program at any point during the three-year cycle were not included in the surveys. Including “non-PEP” teachers would strengthen the study by comparing the ways in which these teachers differed in opinion to the PEP teachers. This information could potentially yield valuable data regarding the PEP experience with other professional development experiences.

Although precautions were taken to help maintain anonymity, it is possible that respondents to the survey questionnaires may have been positively or negatively influenced by the position the researcher holds as principal and primary supervisor of the



staff. While a positive and professional working relationship exists between the school leadership and faculty members, this partiality must be acknowledged.

The interview portion of the study and lack of participants may have been influenced by one of several factors. The interviews were conducted at the conclusion of the school year just prior to graduation. During this time period, teachers were administering final examinations and preparing for year-end procedures prior to summer break. The time dedicated to the interview process may have been viewed as an unwelcome interruption to some. Additionally, the interviewer was the former superintendent of schools (retired) two years removed. This individual was also well-respected and seen as a very fair and “popular” superintendent. Given his two years of retirement, he shared no responsibility or influence on staff evaluations and empowered principals to make decisions related to professional assignments. Nonetheless, it should be acknowledged that his role while employed within the school district could have been viewed in a negative manner thus making PEP teachers apprehensive in participating in the interviews.

While the response rate of the survey instruments was high, there were a limited number of individuals involved in the survey ( $N = 42$ ). A replication of this study in other school systems in suburban, rural, and urban settings that have a similar program would provide additional information as to the effectiveness of this form of professional development across different environments.

## Conclusions

When evaluated using the instruments noted, the Professional Education Program model does show promise as an effective professional development structure. It addresses issues related to the professional development standards as established by the National Staff Development Council but could still be improved in some aspects of the program design and evaluation. Those areas of most benefit address issues related to time dedicated to professional development and collaboration issues especially among less experienced faculty.

The impact on those professional educators who have participated in the program is positive. Survey results support increases in the likelihood of teachers continuing to engage in action research as well as maintaining a collaborative approach to addressing dilemmas within classrooms. Additionally, teacher efficacy and satisfaction within the profession appear to be enhanced through the Professional Education Program course as is supported by the attitudes and belief data of the Professional Development Questionnaire.

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## APPENDIX A

### **Survey Instruments**

National Staff Development Council Standards Assessment Inventory

Professional Development Questionnaire/Professional Development Survey

**Appendix A**  
**Standards Assessment Inventory (SAI)**

| <i>Please mark the responses that most accurately reflect your experiences at your school</i>                                                                                                           | <i>Never</i> | <i>Seldom</i> | <i>Sometimes</i> | <i>Frequently</i> | <i>Always</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|------------------|-------------------|---------------|
| 1. Our principal believes teacher learning is essential for achieving our school goals.                                                                                                                 | 0            | 1             | 2                | 3                 | 4             |
| 2. Fellow teachers, trainers, facilitators, and/or consultants are available to help us implement new instructional practices at our school.                                                            | 0            | 1             | 2                | 3                 | 4             |
| 3. We design evaluations of our professional development activities prior to the professional development program or set of activities.                                                                 | 0            | 1             | 2                | 3                 | 4             |
| 4. Our school uses educational research to select programs.                                                                                                                                             | 0            | 1             | 2                | 3                 | 4             |
| 5. We have opportunities to practice new skills gained during staff development.                                                                                                                        | 0            | 1             | 2                | 3                 | 4             |
| 6. Our faculty learns about effective ways to work together..                                                                                                                                           | 0            | 1             | 2                | 3                 | 4             |
| 7. Teachers are provided opportunities to gain deep understanding of the subjects they teach.                                                                                                           | 0            | 1             | 2                | 3                 | 4             |
| 8. Teachers are provided opportunities to learn how to involve families in their children's education.                                                                                                  | 0            | 1             | 2                | 3                 | 4             |
| 9. The teachers in my school meet as a whole staff to discuss ways to improve teaching and learning.                                                                                                    | 0            | 1             | 2                | 3                 | 4             |
| 10. Our principal's decisions on school-wide issues and practices are influenced by faculty input.                                                                                                      | 0            | 1             | 2                | 3                 | 4             |
| 11. Teachers at our school have opportunities to learn how to use technology to enhance instruction.                                                                                                    | 0            | 1             | 2                | 3                 | 4             |
| 12. Teachers at our school learn how to use data to assess student learning needs.                                                                                                                      | 0            | 1             | 2                | 3                 | 4             |
| 13. We use several sources to evaluate the effectiveness of our professional development on student learning (e.g., classroom observations, teacher surveys, conversations with principals or coaches). | 0            | 1             | 2                | 3                 | 4             |
| 14. We make decisions about professional development based on research that shows evidence of improved student performance.                                                                             | 0            | 1             | 2                | 3                 | 4             |
| 15. At our school teacher learning is supported through a combination of strategies (e.g., workshops, peer coaching, study groups, joint planning of lessons, and examination of student work).         | 0            | 1             | 2                | 3                 | 4             |
| 16. We receive support implementing new skills until they become a natural part of instruction.                                                                                                         | 0            | 1             | 2                | 3                 | 4             |
| 17. The professional development that I participate in models instructional strategies that I will use in my classroom.                                                                                 | 0            | 1             | 2                | 3                 | 4             |
| 18. Our principal is committed to providing teachers with opportunities to improve instruction (e.g., observations, feedback, collaborating with colleagues).                                           | 0            | 1             | 2                | 3                 | 4             |



| <i>Please mark the responses that most accurately reflect your experiences at your school</i>                                                      | <i>Never</i> | <i>Seldom</i> | <i>Sometimes</i> | <i>Frequently</i> | <i>Always</i> |
|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|------------------|-------------------|---------------|
| 19. Substitutes are available to cover our classes when we observe each others' classes or engage in other professional development opportunities. | 0            | 1             | 2                | 3                 | 4             |
| 20. We set aside time to discuss what we learned from our professional development experiences.                                                    | 0            | 1             | 2                | 3                 | 4             |
| 21. When deciding which school improvement efforts to adopt, we look at evidence of effectiveness of programs in other schools.                    | 0            | 1             | 2                | 3                 | 4             |
| 22. We design improvement strategies based on clearly stated outcomes for teacher and student learning.                                            | 0            | 1             | 2                | 3                 | 4             |
| 23. My school structures time for teachers to work together to enhance student learning.                                                           | 0            | 1             | 2                | 3                 | 4             |
| 24. At our school, we adjust instruction and assessment to meet the needs of diverse learners.                                                     | 0            | 1             | 2                | 3                 | 4             |
| 25. We use research-based instructional strategies.                                                                                                | 0            | 1             | 2                | 3                 | 4             |
| 26. Teachers at our school determine the effectiveness of our professional development by using data on student improvement.                       | 0            | 1             | 2                | 3                 | 4             |
| 27. Our professional development promotes deep understanding of a topic.                                                                           | 0            | 1             | 2                | 3                 | 4             |
| 28. Our school's teaching and learning goals depend on staff's ability to work well together.                                                      | 0            | 1             | 2                | 3                 | 4             |
| 29. We observe each other's classroom instruction as one way to improve our teaching.                                                              | 0            | 1             | 2                | 3                 | 4             |
| 30. At our school, evaluations of professional development outcomes are used to plan for professional development choices.                         | 0            | 1             | 2                | 3                 | 4             |
| 31. Communicating our school mission and goals to families and community members is a priority.                                                    | 0            | 1             | 2                | 3                 | 4             |
| 32. Beginning teachers have opportunities to work with more experienced teachers at our school.                                                    | 0            | 1             | 2                | 3                 | 4             |
| 33. Teachers show respect for all of the student sub-populations in our school (e.g., poor, minority).                                             | 0            | 1             | 2                | 3                 | 4             |
| 34. We receive feedback from our colleagues about classroom practices.                                                                             | 0            | 1             | 2                | 3                 | 4             |
| 35. In our school we find creative ways to expand human and material resources.                                                                    | 0            | 1             | 2                | 3                 | 4             |
| 36. When considering school improvement programs we ask whether the program has resulted in student achievement gains.                             | 0            | 1             | 2                | 3                 | 4             |
| 37. Teachers at our school expect high academic achievement for all of our students.                                                               | 0            | 1             | 2                | 3                 | 4             |
| 38. Teacher professional development is part of our school improvement plan.                                                                       | 0            | 1             | 2                | 3                 | 4             |
| 39. Teachers use student data to plan professional development programs.                                                                           | 0            | 1             | 2                | 3                 | 4             |

| <i>Please mark the responses that most accurately reflect your experiences at your school</i>                                                                                            | <i>Never</i> | <i>Seldom</i> | <i>Sometimes</i> | <i>Frequently</i> | <i>Always</i> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|------------------|-------------------|---------------|
| 40. School leaders work with community members to help students achieve academic goals.                                                                                                  | 0            | 1             | 2                | 3                 | 4             |
| 41. The school improvement programs we adopt have been effective with student populations similar to ours.                                                                               | 0            | 1             | 2                | 3                 | 4             |
| 42. At my school, teachers learn through a variety of methods (e.g., hands-on activities, discussion, dialogue, writing, demonstrations, practice with feedback, group problem solving). | 0            | 1             | 2                | 3                 | 4             |
| 43. Our school leaders encourage sharing responsibility to achieve school goals.                                                                                                         | 0            | 1             | 2                | 3                 | 4             |
| 44. We are focused on creating positive relationships between teachers and students.                                                                                                     | 0            | 1             | 2                | 3                 | 4             |
| 45. Our principal fosters a school culture that is focused on instructional improvement.                                                                                                 | 0            | 1             | 2                | 3                 | 4             |
| 46. Teachers use student data when discussing instruction and curriculum.                                                                                                                | 0            | 1             | 2                | 3                 | 4             |
| 47. Our principal models how to build relationships with students' families.                                                                                                             | 0            | 1             | 2                | 3                 | 4             |
| 48. I would use the word, empowering, to describe my principal.                                                                                                                          | 0            | 1             | 2                | 3                 | 4             |
| 49. School goals determine how resources are allocated.                                                                                                                                  | 0            | 1             | 2                | 3                 | 4             |
| 50. Teachers analyze classroom data with each other to improve student learning.                                                                                                         | 0            | 1             | 2                | 3                 | 4             |
| 51. We use students' classroom performance to assess the success of teachers' professional development experiences.                                                                      | 0            | 1             | 2                | 3                 | 4             |
| 52. Teachers' prior knowledge and experience are taken into consideration when designing staff development at our school.                                                                | 0            | 1             | 2                | 3                 | 4             |
| 53. At our school, teachers can choose the types of professional development they receive (e.g., study group, action research, observations).                                            | 0            | 1             | 2                | 3                 | 4             |
| 54. Our school's professional development helps me learn about effective student assessment techniques.                                                                                  | 0            | 1             | 2                | 3                 | 4             |
| 55. Teachers work with families to help them support students' learning at home.                                                                                                         | 0            | 1             | 2                | 3                 | 4             |
| 56. Teachers examine student work with each other.                                                                                                                                       | 0            | 1             | 2                | 3                 | 4             |
| 57. When we adopt school improvement initiatives we stay with them long enough to see if changes in instructional practice and student performance occur.                                | 0            | 1             | 2                | 3                 | 4             |
| 58. Our principal models effective collaboration.                                                                                                                                        | 0            | 1             | 2                | 3                 | 4             |
| 59. Teachers receive training on curriculum and instruction for students at different levels of learning.                                                                                | 0            | 1             | 2                | 3                 | 4             |
| 60. Our administrators engage teachers in conversations about instruction and student learning.                                                                                          | 0            | 1             | 2                | 3                 | 4             |

## Appendix A

### *Professional Development Survey*

### *Professional Development Questionnaire*

#### SECTION 1

Please tell me about yourself:

Total Number of Years Teaching Experience (including this year)

1-3      4 – 9      10-14      15-19      20-24      25-29      30 +

Total Number of Years Teaching in this school district (including this year)

1-3      4 – 9      10-14      15-19      20-24      25-29      30 +

Grade level Currently Teaching: (check all that apply)

Pre-K-2      3-5      6-8      9-12

Subject or Content Area: \_\_\_\_\_

#### Professional Development Process

1. I am aware of the goals of my district's Professional Development Plan.
  - ☐ Yes
  - ☐ No
2. My district's Professional Development Plan is linked to overall school improvement and increased student achievement.
  - ☐ Yes
  - ☐ No
  - ☐ Not sure
3. My district's professional development plan is related to the teacher evaluation process.
  - ☐ Yes
  - ☐ No
  - ☐ Not sure
4. Professional development in my district is offered: (check all that apply)
  - ☐ During the school day
  - ☐ Before and/or after school
  - ☐ On conference days
  - ☐ At the end of the school year (the week after school closes)
  - ☐ At the beginning of the school year (end of August or early Sept.)
  - ☐ During the summer
  - ☐ On my lunch hour
  - ☐ On weekends
  - ☐ In the evenings
  - ☐ Online
  - ☐ Other \_\_\_\_\_

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5. In which types of professional development activities have you participated? (check all that apply)

Individually guided staff development

- ☐ Individual Professional Development Plan - learning is designed by the teacher, teacher determines his or her own goals and chooses the activities that will help accomplish the goals
- ☐ Individual Professional Improvement Plan - teacher has been advised that he/she has a weakness in particular area(s) and exercises an improvement plan in conjunction with an administrator or support person
- ☐ Guided practice - teacher meets with "experts" to learn new skills, instructional strategies and receives in-class guidance
- ☐ Reflection about teaching and learning

Observation/Assessment

- ☐ Classroom observation and assessment - evaluation by administrators (formal feedback)
- ☐ Classroom observation by a fellow teacher - peer coaching
- ☐ Mentoring - engaged in formal mentor program with trained mentor

Involvement in a Development/Improvement Process

- ☐ Curriculum Development Days - teachers learn as a result of being involved in the development, design and/or improvement of curriculum
- ☐ School Improvement Committees - teachers learn through participation on committees such as strategic planning or Comprehensive District Education Plan (CDEP)

Training

- ☐ Presentations or Demonstrations (1/2 day or 1 day)
- ☐ Workshops or seminars (1/2 day or 1 day)
- ☐ Conferences
- ☐ Expert Lectures or Motivational Speeches

Inquiry

- ☐ Peer study groups – teachers meet to discuss current research in education
- ☐ Inquiry/Action Research - teachers formulate questions, gather and analyze data and use their findings to advance instruction

Courses

- ☐ Graduate courses
- ☐ Long-term courses within the District - (8-10 sessions or more) with in-class support. Follow-up, feedback and support in the classroom is provided to improve implementation of new instructional strategies
- ☐ Long-term courses within the District (8-10 sessions or more) without in-class support, feedback or follow-up
- ☐ Continuing Education or Adult Education Course (not for credit)
- ☐ Teacher Center Courses
- ☐ Boces Courses

List any other types of professional development experiences you have had that are not mentioned on the previous page

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**Professional Development Content**

6. Who decides the content of professional development in your district?
- ☐ District Level Administrators
  - ☐ Building/School Level Administrators
  - ☐ Grade Level or Department Chairperson
  - ☐ Professional Development Committee
  - ☐ Teachers
  - ☐ Combination
  - ☐ Other \_\_\_\_\_
7. Please list the topics of the last 3 professional development opportunities offered to you by your school district in which you participated: (ie: technology, learning styles, brain research, differentiation)
1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_

**SECTION 2**

| Statement:<br>Professional development in my school district:     | Strongly Agree | Agree | No Opinion | Disagree | Strongly Disagree |
|-------------------------------------------------------------------|----------------|-------|------------|----------|-------------------|
| 8. Meets my needs                                                 |                |       |            |          |                   |
| 9. Is nonthreatening                                              |                |       |            |          |                   |
| 10. Is offered at a time convenient for me                        |                |       |            |          |                   |
| 11. Is time well-spent                                            |                |       |            |          |                   |
| 12. Is offered by instructors who are knowledgeable and effective |                |       |            |          |                   |
| 13. Is generally a positive experience                            |                |       |            |          |                   |

| Statement:<br>Because of professional development, I have learned: | Strongly Agree | Agree | No Opinion | Disagree | Strongly Disagree |
|--------------------------------------------------------------------|----------------|-------|------------|----------|-------------------|
| 14. Practical instructional strategies                             |                |       |            |          |                   |
| 15. New knowledge and skills                                       |                |       |            |          |                   |
| 16. The theory behind the practice                                 |                |       |            |          |                   |
| 17. New concepts connected to prior knowledge                      |                |       |            |          |                   |

## THE JOURNAL OF RESEARCH IN PROFESSIONAL LEARNING

| <b>Statement:</b><br><b>Professional development in my school district:</b> | <b>Strongly Agree</b> | <b>Agree</b> | <b>No Opinion</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|-----------------------------------------------------------------------------|-----------------------|--------------|-------------------|-----------------|--------------------------|
| 18. Has a positive impact on the organization as a whole                    |                       |              |                   |                 |                          |
| 19. Has a positive impact on the culture and climate in my school           |                       |              |                   |                 |                          |
| 20. Is often conducted during the school day                                |                       |              |                   |                 |                          |
| 21. Leads to in-service credit or a stipend                                 |                       |              |                   |                 |                          |
| 22. Is recognized as being extremely important by the following:            |                       |              |                   |                 |                          |
| Board of Education                                                          |                       |              |                   |                 |                          |
| District Administrators                                                     |                       |              |                   |                 |                          |
| Building Administrators                                                     |                       |              |                   |                 |                          |
| My Colleagues                                                               |                       |              |                   |                 |                          |
| Myself                                                                      |                       |              |                   |                 |                          |
| Parents                                                                     |                       |              |                   |                 |                          |

| <b>Statement:</b><br><b>After I have participated in a professional development experience, I usually:</b> | <b>Strongly Agree</b> | <b>Agree</b> | <b>No Opinion</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|------------------------------------------------------------------------------------------------------------|-----------------------|--------------|-------------------|-----------------|--------------------------|
| 23. Go back and experiment or practice with new instructional strategies                                   |                       |              |                   |                 |                          |
| 24. Implement/apply new instructional practices                                                            |                       |              |                   |                 |                          |
| 25. Become committed to new teaching strategies                                                            |                       |              |                   |                 |                          |
| 26. Note positive changes in my teaching                                                                   |                       |              |                   |                 |                          |
| 27. Make long-lasting changes in my teaching                                                               |                       |              |                   |                 |                          |

| <b>Statement:</b><br><b>Generally, my professional development impacts my students in the following ways:</b> | <b>Strongly Agree</b> | <b>Agree</b> | <b>No Opinion</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|---------------------------------------------------------------------------------------------------------------|-----------------------|--------------|-------------------|-----------------|--------------------------|
| 28. It makes a positive impact on my students' learning                                                       |                       |              |                   |                 |                          |
| 29. Student achievement increases                                                                             |                       |              |                   |                 |                          |
| 30. Students are more engaged in learning                                                                     |                       |              |                   |                 |                          |
| 31. Students are involved in their own learning                                                               |                       |              |                   |                 |                          |
| 32. Classroom management has improved                                                                         |                       |              |                   |                 |                          |
| 33. Student achievement has risen on state or district assessments                                            |                       |              |                   |                 |                          |
| 34. Student achievement has risen on teacher or classroom assessments                                         |                       |              |                   |                 |                          |
| 35. Students' confidence as learners has improved                                                             |                       |              |                   |                 |                          |

## THE JOURNAL OF RESEARCH IN PROFESSIONAL LEARNING

| <b>Statement:</b><br><b>As a result of professional development, my attitudes and beliefs about teaching and learning change when:</b> | <b>Strongly Agree</b> | <b>Agree</b> | <b>No Opinion</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|-------------------|-----------------|--------------------------|
| 36. The experience was meaningful to me                                                                                                |                       |              |                   |                 |                          |
| 37. I learned practical instructional strategies                                                                                       |                       |              |                   |                 |                          |
| 38. My teaching becomes more effective                                                                                                 |                       |              |                   |                 |                          |
| 39. I am more efficient or productive as a teacher                                                                                     |                       |              |                   |                 |                          |
| 40. I've enjoyed the experience                                                                                                        |                       |              |                   |                 |                          |
| 41. I become empowered in new ways                                                                                                     |                       |              |                   |                 |                          |
| 42. I have learned to meet the various needs of all of my students                                                                     |                       |              |                   |                 |                          |
| 43. It has a positive impact on student behavior                                                                                       |                       |              |                   |                 |                          |
| 44. My students become more actively engaged in learning                                                                               |                       |              |                   |                 |                          |
| 45. I can see a positive impact on student achievement                                                                                 |                       |              |                   |                 |                          |
| 46. It impacts my annual performance evaluations positively                                                                            |                       |              |                   |                 |                          |
| 47. I receive positive feedback from my supervisor                                                                                     |                       |              |                   |                 |                          |
| 48. My efforts are recognized                                                                                                          |                       |              |                   |                 |                          |
| 49. I feel proud of my accomplishments                                                                                                 |                       |              |                   |                 |                          |
| 50. It connects to district needs and overall school improvement                                                                       |                       |              |                   |                 |                          |

## APPENDIX B

Cover Letter  
Informed Consent Form

Duquesne University  
Department of Education  
Canevin Hall  
600 Forbes Avenue  
Pittsburgh, PA

(Date)

Dear Professional Educator:

With the passing of various legislation, including the federal No Child Left Behind Act and Pennsylvania's subsequent Continuing Professional Education Act, also known as Act 48 of 1999, teacher accountability is at an all-time high. Reflective of this accountability are the demands that are now placed on educators to maintain proper certification through a plethora of continuing education and professional development requirements.

My name is Kenneth A. Williams and I am a doctoral student in the Instructional Leadership Excellence at Duquesne (ILEAD) program at Duquesne University. I am currently in the process of completing course requirements related to doctoral research in the area of professional development and action research. I have identified the Professional Education Program (PEP) at Fox Chapel Area High School as a program worthy of further examination in order to determine its program effectiveness and its potential as a professional development model to be replicated in other educational settings.

Enclosed with this letter are two survey instruments. The first instrument, the Standards Assessment Inventory (SAI), is a survey instrument designed by the National Staff Development Council (NSDC) to evaluate school district's professional development programs to the NSDC's identified standards. The second survey instrument is the Professional Development Survey, Professional Development Questionnaire that appeared in NSDC's publication *The Journal of Research in Professional Learning*. The SAI is designed to evaluate professional development offerings against the research-based standards of the NSDC. The Professional Development Survey is designed to gather specific data about particular professional development programs. I have identified this tool as a means to gather data about the PEP program itself and the impact PEP has had on your daily instructional practices.

You have been identified as completing the PEP program during the current action research phase. I am asking that you complete the enclosed surveys and return them in



the attached envelop by (April 10, 2007) to the guidance office. Your participation in this study is completely voluntary and your responses will not be used in any way to evaluate you as a professional educator by your employer. A color-coding system to identify the three distinct cohorts of PEP teachers will be used for returning the surveys and keeping data sets separate. To maintain the anonymous nature of this survey, please do not place your name anywhere on the instrument itself.

In order to conduct this research, I have received approval through the Institutional Review Board (IRB) at Duquesne University. I have completed the necessary National Institute of Health human subjects certification course. There are no known risks associated with completing these surveys. Your participation in this study is purely voluntary. Each instrument should take you approximately 25 minutes to complete. Additionally, you may be randomly selected to participate in an interview with an independent interview for the purpose of gathering information pertaining to student achievement and the impact PEP has had on your instructional practice. Upon returning your survey to the guidance office, please sign up for the voluntary interviews if you are interested.

A summary of this program evaluation will be made available to you upon your request. You may request the results by contacting in writing either individual listed below.

We sincerely appreciate your willingness and cooperation in participating in this research effort and look forward to receiving your completed surveys.

Sincerely,

Kenneth A. Williams, Doctoral Candidate  
Duquesne University  
Instructional Leadership Excellence at Duquesne  
Canevin Hall  
600 Forbes Avenue  
Pittsburgh, PA  
(412) 396-1852  
[williamsk521@duq.edu](mailto:williamsk521@duq.edu)

Derek Whordley, Ed.D., Dissertation Chairman  
Duquesne University  
Instructional Leadership Excellence at Duquesne  
Canevin Hall  
600 Forbes Avenue  
Pittsburgh, PA  
(412) 396-6599  
[whordley@duq.edu](mailto:whordley@duq.edu)

## APPENDIX C

## Professional Education Program Interview

Directions: This interview is being conducted in order to gather ethnographic information about your specific action research topic. The information contained herein will be used to gather information concerning your feelings of the PEP course and its impact on your instructional practice. This information will be compared and analyzed to the responses of other teachers who have volunteered to be a part of this study. The answers to the interview questions will remain confidential and will not be used as a means for professional evaluation of you as an employee of the Fox Chapel Area School District.

1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?
2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?
3. What were the primary data sources that you used to inform your research question?
4. How did you gather data (pre- and post-) in order to compare the results of your area of inquiry?
5. What were the results of your data analysis? How did you use the results of the data analysis?
6. What evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?
7. To what extent do you continue to use action research to better inform and improve your instructional practice?



## APPENDIX D

## DUQUESNE UNIVERSITY

600 FORBES AVENUE ♦ PITTSBURGH, PA 15282

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY**

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>TITLE:</b>                    | Action Research: An investigation of teacher perceptions of a job-embedded professional development program in a suburban high school.                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>INVESTIGATOR:</b>             | Kenneth A. Williams<br>611 Field Club Road<br>Pittsburgh, PA 15238<br>412.967.2433                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>ADVISOR: (if applicable:)</b> | Dr. Derek Whordley<br>Instructional Leadership in Education at Duquesne<br>Canevin Hall<br>600 Forbes Road<br>Pittsburgh, PA 15282<br>412.396.6599                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>SOURCE OF SUPPORT:</b>        | This study is being performed as partial fulfillment of the requirements for the doctor of education degree in Instructional Leadership in Education at Duquesne University (ILEAD).                                                                                                                                                                                                                                                                                                                                                                 |
| <b>PURPOSE:</b>                  | <p>You are being asked to participate in a research project that seeks to investigate the effectiveness of the Professional Education Program at Fox Chapel Area High School. You are being asked to complete two (2) survey instruments to evaluate the PEP program. In addition, you may be asked to complete an interview by an independent party if selected at random from the field of respondents within your PEP cohort. The interviews will be audiotaped and transcribed.</p> <p>These are the only requests that will be made of you.</p> |

**RISKS AND BENEFITS:**

There are no risks greater than those encountered in everyday life. As the primary researcher also serves in an administrative/evaluative capacity within the high school, comprehensive measures will be taken to assure anonymity in survey responses. The benefits of the research study are to improve the working environment and professional development within the school district and to contribute to the research literature on professional development in the field of education across the nation.

**COMPENSATION:**

All respondents who submit a completed survey will receive a gift certificate (\$5 value) to a local restaurant or coffee shop as a token of the researcher's appreciation for participation. Participation in the project will require no monetary cost to you.

**CONFIDENTIALITY:**

Your name will never appear on any survey or research instruments. No identity will be made in the data analysis. All written materials and consent forms will be stored in a locked file in the researcher's home. Your response(s) will only appear in statistical data summaries. An independent interviewer not employed by the Fox Chapel Area School District and not a member of the dissertation committee will conduct the interviews and transcribe the audiotapes. All personal identifiers will be removed from the transcript.

**RIGHT TO WITHDRAW:**

You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time.

**SUMMARY OF RESULTS:**

A summary of the results of this research will be supplied to you, at no cost, upon request.

**VOLUNTARY CONSENT:**

I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may call Kenneth A. Williams (412.967.2433), Dr. Derek Whordley (412.396.6599), and/or Dr. Paul Richer,(Chair of the Duquesne University Institutional Review Board, 412.396.6326).

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Participant's Signature

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Date

---

Researcher's Signature

---

Date

## APPENDIX E

The information contained herein is the transcribed conversations/interviews with teachers from the Professional Education Program. Because these transcripts are based on the actual conversations, grammatical and syntax errors have not been corrected. These are the actual words used by the interviewees. If necessary, identifiers of individuals were removed or replaced by the person who transcribed the information in order to assist in the protection of anonymity.

### **Professional Education Program Interview Teacher 1 2004-2005 Cohort**

**Interviewer:** I'm going to be interviewing a number of teachers. This is teacher number 1. We're going to be talking about the Professional Education Program. Each of the teachers that I'm going to be interviewing is doing this as a volunteer. They don't have to do this. Everything that they say will be kept confidential. What we're going to be doing is I'm going to be having my secretary transcribe all of the statements so that there is a copy of the transcription but will not actually get a copy of the tape so that there won't be any identifying information. So this will be teacher number 1.

#### **1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 1:** Off the top of my mind, I can't remember that. Do I have other information in there? It has been over a year. My guiding question was "Students can apply the technology problem solving method to research problems, but have difficulty applying this method to a robotic problem." That was my question.

**2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?**

**Teacher 1:** I wanted to determine if I modeled, I usually refer to that as a TPSM so I don't have to say it all the time (technology problem solving method.) I wanted to see if I could model that problem solving method if students would pick it up better.

Because whenever we go over in a lecture, I give them an exercise where they take a product and they show and they break it down – you know the inputs the outputs and they can explain all of these things. Whenever I gave them a physical problem like a robotics problem, they didn't know that they could apply this problem solving method nor did they apply it. Some kids did, and when I say some kids, the upper level kids. The higher academic level kids did. Everyone below those kids did not and that was my concern. Why couldn't they apply that? So with this question I was interested in determining if teacher modeling apply the TPSM to a complex problem would enhance their learning.

**Interviewer:** In other words, you were having trouble getting the students to be able to take the academic information and actually applying it. And what you wanted to do is give them the academic information and then model that and then see if at that point they could problem solve with their own project.

**Teacher 1:** Right. When we start out at the beginning of the year, I show them this problem solving method, the technology problem solving method and I show them how they can apply it with a different demonstration on paper. Like I say, ok here's what we're going to use. This is how, ok, we're going to take a bicycle; "How is it

manufactured?” So they can say, “Well, it takes people, materials and so forth. This is the input.” Then they talk about the processes and they talk about the output and then they show the feedback coming back and this is how we break everything down. I go over these examples, and I even bring in something small, a little gizmo and I’ll say “Ok, how is this lamp made?” They can say “this, this, and this” and they can write it down then they hand back a piece of paper with all of this information. All of the kids could understand it. They could get an understanding of it. I assumed that when we started applying it to a physical problem, for example, in robotics, they would take the same thing, the inputs, the process, the outputs and the feedback and use that method to solve a problem. Because we have them like, one of the problems is make a hamburger from start to finish. One year it was making a corn dog - actually cooking a corn dog. All we would give them is “Ok, here is your problem – now solve it.” If they would use the method, they could see how they could break it down to do these things, but they weren’t applying. We’d get one student who could – usually he was a higher end student. When I say higher end, I mean higher academic student and he could take and apply this method and he would kind of be in charge. The other kids would just follow him, but they really weren’t trying to solve it either, they were kind of just following his lead and that’s what I wanted to get from my question.

### **3. What were the primary data sources that you used to inform your research question?**

**Teacher 1:** Ok the way, when you say inform the question or in my surveys say my data collection strategies. Is that what you want?



**Interviewer:** What did you - before you began. What were the data? What were the things that you were observing and what were you going to do then to be able to inform you of the research question?

**Teacher 1:** The process was just a visual. I could see that other students were not getting the problem; like they were not trying to solve it with the problem solving method. I'd have one student in a group, cause I tried to take the kids and group them up so that there were different levels of academic skills so they could each climb aboard and do their thing. So what I did to collect the data is a pre- and a post-survey, of course I did observations, interviews with the kids, I actually videotaped, like we're sitting here now, and I videotaped the kids. I explained to them what I was doing and what it was for – for the PEP class. Why I was doing it - to enhance my teaching and their learning and they understood that. I told them that I would not be sharing it with anyone and I did not. They were really honest. And I sat there and I had those kids that solved these problems answer different questions. And then of course, I had an assessment, a rubric, for the robotic problem solving activity like I asked the kids questions. The rubric was more like a questionnaire than a rubric of their achievement. Like “Why did you do this?” or “Did you do this?”

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 1:** I did a pre- and post-questionnaire. It was the exact same questionnaire. You can see how it worked, “strongly agree, strongly disagree” and it goes through with statements like “I’m confident in my ability to independently learn how to program the robotic arms inputs and outputs.” That was a pre-test. Of course, the

post-test would be identical since before the learning and after the learning. What I'm trying to get from this is; Did my modeling helped this happen? In the past, I know it didn't work because I watched, I observed, that's how I got to this point. So I tried to have all of these questions so that before they know nothing – just about the robotic arm, they had all the lessons on it. Then I actually showed them how I would solve a problem. I was using the inputs and outputs and the robotic arm and I'd demonstrate – not only would I demonstrate, how to do it, but I would use the board to write down the inputs and the outputs so the students would see that it's like they did on their piece of paper before and I can see how I can actually physically take this information and make it work.

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 1:** In a way, I knew it was going to say what I wanted it to say, but I still needed to see that it would say that. I assumed that it would be better after doing all of this demonstration and actually modeling it, and it was, the kids were more confident afterwards. The kids said they could sit down and solve a problem and they did. I gave each student individually – no one else in the classroom, would sit down and I'd say ok, do point "A", point "B", point "C", now you solve this problem and they would sit down and solve it and write their inputs and outputs and show me the program work. Now just not the higher end kid could do it all kids could do it.

**Interviewer:** You were confident even before you went into this that this was going to be a success.

**Teacher 1:** I was because usually when you do model something, it does help the students learning, but I wanted to make sure so I had to do it this way to make sure that this was going to happen. I always thought I did a good job before. But I could see that it wasn't working in the way that I wanted it to – in this way I wanted to reach all of the kids. When I say all of the kids, I'd say 90% of the kids would improve or get better. Not all of the kids could sit here and solve every problem using that problem solving method.

**Interviewer:** So you saw a significant number of children who were able to do a lot better with the problem solving method after they saw your modeling.

**Teacher 1:** Right. I think in my PowerPoint it was like 93 something. I did the percentages from the survey and through observation.

**Interviewer:** And the students, when they did the pre and post did they also indicate to you that they were a lot more confident in their ability to do this?

**Teacher 1:** They were, in fact, I gave the post after everything was done. I didn't just wait until the modeling was done. I waited until the whole activity was over, then I gave them the questionnaire again. By this time, they had kind of forgotten about it. They didn't remember what they had answered before. That was the whole idea to give it to them way at the end. This was a four-week process so they got it at the beginning, didn't really say much about it, and just told them what I was trying to do. Gave them the survey and they did their best on it. Wait until the complete end of the activity and gave them the survey again. Didn't tell them it was the same survey or that one was a pre- or post- survey so I could get honest answers. And I think that worked.

**6. What evidence do you have to demonstrate an increase in student achievement or student understanding relating to your action research project?**

**Teacher 1:** The evidence was again we did a pre-testing. Kind of like – here you go this is what we need to do, can you do it? Most of them were not confident. One student had said “I can’t really do this; I know that I can’t really program this.” He’s kind of like the leader in the group, they demonstrated that, then I would model it then they were all like, maybe I can do it. Then I surprised them with saying, “Ok, you’re not going to be with a team now. I’m going to give you a problem and you’re going to have to solve it yourself. You have to do all of this information then you have to collect this data then I’m going to give you a sheet to fill out which was the inputs and outputs so they could show me the problem solving method. They had to use it and almost every kid could do it. Some could not still, but they knew the process and understood it better. They just couldn’t finalize it, for whatever reason, but most of the kids could take that now – where before the high end kid was the leader, they followed his lead and that was the end of it. Now they could sit down, I gave them a task and they would do the task. In fact I just got finished with the last student today; I’d say, “Ok, you use this input’s conveyer belt. You have to pick this piece up and move it over here, put some tape down, it’s has to be placed here, You’re going to have to make the buzzer sound five times. You’ve got to move the robotic arm down the slide. So they would do all these inputs and outputs of processes and then I would come in and they would say “Ok, my program’s ready.” And they would demonstrate it. I would ask “Ok, what’s an input? Or What’s an

output?” and if they didn’t know that, they couldn’t program the robotic arm, because that’s how we talked to them.

**Interviewer:** You’re kids; by the way, it’s very heterogeneous. You have kids that are gifted and you have kids that are very limited in their abilities.

**Teacher 1:** When I say higher academic student, it’s not always the student who is the gifted student that’s the higher student in my class. He could be the so-called middle range. He’s not gifted, he’s not learning support. He’s kind of in the middle, but in my class he excels. He would be the leader. A lot of the kids with the higher end academics do pick it up easier because their skills are higher. I can do anything and they’ll pick it up right now. I demonstrate on the robotic arm and they can sit down and do it better than me in five minutes. We know they are able to do that. I know they are able to do that, but other kids aren’t picking it up in the same way so that’s why it was important to see what I was doing wrong.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 1:** Well, today, it’s only been a year, but even today I demonstrate the problem solving activity and I also show them how to do the method while they’re doing it. I still do it the way I used to, but now I’ve added using the robotic arm. We can apply to any problem, for example, in TSA the kids apply it to every class because that’s what they do. They have to research and they have to test and they have to build, manufacture, write about it, and show all the research and in the end they have to show it, and test it and sometimes even interview over it and they understand it completely. But, even that group of kids, if I said “Here’s a robotic arm,

show me how the inputs, process and outputs and show me this” We have this chart that actually does everything for you – you just have to write it in. They’ll say “I’ve never done it this way. First I know I have to research and that’s my input, then I have to do all the processes like trying to solve a problem.” But when they physically have to take a robotic arm and make it do things and use the method, it was difficult. So I modeled the whole thing. I showed them exactly how it works, and it makes it easier for them when they are sitting there trying to make this robotic arm and do all these processes and steps that we show them, then show how it works. Even today I use it, that’s why I picked this because I wanted to have every student know when they leave how to program a robotic arm. There is a lot of that going on right now.

**Professional Education Program Interview  
Teacher 2  
2004-2005 Cohort**

**Interviewer:** This is teacher number 2 in the 2004-2005 cohort. Teacher number 2 is coming in and volunteering to do this. He's not obligated to do it. All the information that he gives will not be connected to his name in any which way. In fact, what I will be doing is, the reason we're taping this is I'm going to be giving this to my secretary she'll transcribe it with just teacher number 2, 2004-2005 cohort and that's the total of the information.

**1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 2:** What I looked at is how or if on-line tutorials could be effective in addressing student writing weaknesses. Basically we took a series of areas in earlier writing assignments which students were weak, assigned some tutorials around those specific areas and posted them on line which the student could go back and reference them as they were writing as a way to try to individualize writing instruction so that it wasn't giving twenty-five kids something maybe four or five kids might need to help them in that way.

**2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?**

**Teacher 2:** The course I teach is a heterogeneously grouped class which kids from all levels from ed support to gifted are all in the same classroom so it requires meeting a wide range of learning needs and such and as a result I had always found there was a

lot of range in writing ability and the things kids might or might not need and we touched on a lot of it, but a lot of kids need reinforcement of it. Some kids, I was hoping to almost use as acceleration so you're really good with this aspect of it, here's another step you might take, go ahead and look at it yourself and move forward. Again, I didn't want to give it to the entire group whereas twenty or twenty-two of the twenty-five kids might be overwhelmed by that aspect, but a few might be able to really get something out of it. So the idea was to look at both struggling areas and also areas where kids could try to be pushed a little bit. Put those kinds of individual tutorials up and see how that would help them with their writing. So really it came out of the idea of addressing weaknesses or strengths in writing in a heterogeneously grouped class.

**Interviewer:** And your class size is about twenty-five?

**Teacher 2:** Um, it could range anywhere from twenty-one, twenty-two to as much as twenty-eight or twenty-nine. I think this year we've been fortunate that we were kept in the low twenty's. The year that I was in the PEP course we were all twenty-seven, twenty-eight.

### **3. What were the primary data sources that you used to inform your research question?**

**Teacher 2:** By inform my research question, do you mean to look after at the end result or to create the question?

**Interviewer:** To create the question. What did you use to help decide what you were going to do?



**Teacher 2:** My own observation of students of past classes. In terms of the PEP program itself, we had to form the questions very early on so because we are on semester courses here it was a semester class. As I was just getting to know the students and I was just starting to, that's when I was also formulating the question. But I knew in the past and totally from looking at writing and the range of scores on different writing assignments that I wanted to do something focused on, as an English teacher, I wanted to do something focused on writing and I felt that that would be an interesting place to start. I knew that there was a lot of, I knew that there were a number of weaknesses in student writing that I wanted to address in some way that didn't fit neatly or in a tidy way into the curriculum and again it wasn't something that maybe even a majority of the students would need but rather a minority of the students might need so a way to try and help them without stealing class time that would otherwise be a waste for the other, you know, 80% of the kids. Maybe not so much of a waste as it would be a repetition or a review...

**Interviewer:** A redundancy

**Teacher 2:** A redundancy is a good word for it, thank you.

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 2:** Well, we had an initial writing assignment where I evaluate the student writing. Identified strengths and weaknesses within the class as a whole. I then took what I saw as the weaknesses and designed tutorials around those. Put those on line and explained to the kids where to find them. Walked the kids through, you know, how to get there on their own computers. Then I'd use the next two essays to look at

if those weaknesses improved without directly teaching those weakness areas just having those tutorials there. I looked at if those weakness areas improved in the student writing as a result of that. I also surveyed the class to ask “How often did you use those? Did you find them effective? What areas were effective, what areas were not? What areas would you like to see more in?” So I surveyed them that way and I spoke to a handful of students one-on-one as well.

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 2:** Quite honestly, what I found was the kids who went and used the tutorials found they were effective. I would say that out of a class of twenty-five to thirty, you’re looking at five or six who really more than just glanced at them and checked them out. Who actually said that they actually used them as they were writing they would look at one or more of them and have it next to the writing assignment to kind of answer the questions. For instance, one of the tutorials, I also have a problem as an English teacher, the students they think the revision and the aiding process is hitting spell check or grammar check and then moving forward. So there’s a whole tutorial. There’s a list of revision questions to ask yourself in revision. There’s a whole list of questions to ask yourself when editing. And so the kids who used those responded very positively. You know, I felt like I was really able to see and understand what I was writing. I was able to identify grammatical errors that weren’t picked in other ways so they felt it was successful. The problem was there was no real hook that the kids use it. It was pretty much self-directed. If the kids wanted to take advantage of it

they could but there wasn't, outside of trying to improve their own writing, there wasn't a reason there wasn't any force behind there saying –

**Interviewer:** There was no obligation.

**Teacher 2:** There was no obligation saying that you have to do this. It wasn't a required part of their grade or the course, it was me saying to them "You want to help and improve, here are these opportunities, take it if you wish." Unfortunately, you can't force everyone to take the opportunities that are presented to them. That's the other thing that you find, some of the kids who could use this the most were the one's who were least willing to put themselves out there. Some of the kids who might have needed it the least, but who were very motivated and diligent students were the one's who were going and looking and trying and trying to use them. So that in that respect too you know some of the kids you were trying to attach to the most, they weren't necessary the most interested because they don't have a great interest in writing. They do it because they have to not because they want to or like to and have a lot of interest or desire to improve.

**6. What evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?**

**Teacher 2:** Well, what we have is, what we had, I mean, – that was three years ago now and we had the essays prior to having the tutorials and the writing assignments when the tutorials were up and then post we had a series of writings over the course of a few units in the class to track student writing and success or weakness in

improvement and such like that. Scores that score all of their writing assignments were the main evidence.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 2:** Those tutorials are still there, they are still available at our district through the website through the mail server has a very simple way to post elements to the web and I do still post some of those things. The skill, the ability to take a Word document and turn it into an HTML or PDF or post it to the district website – that’s something I didn’t know how to do before I did my action research so from a professional standpoint, I can do that now. I use that on the athletic team that I coach; I post tryout information and practice times and schedules and such because I know how to use that. It’s a very simple process, but if I didn’t have the professional development opportunity to learn that skill, I wouldn’t be able to do that. And I use that now both in the athletic side and I post other things. Most of my major assignments I can turn into a PDF and put on the web so that it’s there. Students-kids say to me “Well I didn’t get the assignment done because I lost it.” Well, you knew where it could be found. Early in class they are told where to find all of that stuff and I put it up during the course of the assignment and I take it down again after the assignments over. So it’s, that’s helped in that way. The writing tutorials are still out there to help the kids if they want them. I tell them that they’re up there, vision tips, ending tips, how to use a quotation from a work of literature within an essay to kind of prove your point, your idea. Using beginning and ending quotations, rules for comma usage. Kids always struggle with comma usage for some reason, the rule

should hopefully be a simple skill but there's comma usage rules in there. There's one about how to focus an idea into a thesis. About turning a general idea into a specific thesis. Then there's some research one's too that I've created since then about narrowing a topic from a general idea to a specific topic for research. How to use resources, where to find different resources in the library and then some other things that go with our specific research projects. So I have a number of them that I can use and post as necessary.

**Professional Education Program Interview  
Teacher 3  
2004-2005 Cohort**

**Interviewer:** I appreciate your coming in. This is going to be teacher number 3 in the 2004-2005 cohort. You're coming in and volunteering to do this. Nobody's asked you or coerced you in any which way and this is of your own free will and what I'll be doing is, I'll be taking these tapes and having my secretary transcribe them. There won't be any personal information connected with them so that in fact you are teacher number 2 in cohort 2004-2005. Are you comfortable with that?

**Teacher 3:** I'm comfortable with that, yes.

**1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 3:** I wanted to determine whether there was a difference in performance with different test formats in the 11<sup>th</sup> and 12<sup>th</sup> grade class. I re-wrote the tests putting different types of format in there, multiple choice, completion, true and false, and essay and I buried it through different tests throughout the semester. I then kept track of what the relative scores were in each of those subsections and basically found out that it didn't make a difference for those two classes. But it was something that I was curious about and since we needed to have some guiding research question, that seemed to be something that fit in.

**2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?**

**Teacher 3:** Well, I wanted to know how effective my teaching was and I also wanted to know how effective the formatting of the test questions were. Whether that made a difference, and by looking at that information, I made a correlation between the success factors that the students were seeing on particular formats with the appropriateness of the way I presented the material in class. So it was to check my teaching skills along with their comprehension skills and to see what adjustments and tweaking we could do.

**3. What were the primary data sources that you used to inform your research question? In other words, what were the things that you were seeing that helped formulate what you were planning to do? What were the students doing, or not doing?**

**Teacher 3:** Prior to this, I had a great deal of concern about the completion and essay type question. I wasn't seeing the answers that I had expected to see based on the amount of time and thoroughness in which we had covered the material in class. I also found it curious that the students did not like true and false questions and some of them did very poorly on it and that was a curiosity to me. Their preferred method seemed to be the multiple choice. Matching was probably a close second to the multiple choice. With a true and false – I think perhaps they would have liked the completion and the essay better than the true and false. That seemed to be where they really fell off and where they were expressing difficulty. My concern was with their writing skills in addition to am I – first of all, am I covering the material appropriately? Looking at the standards, looking at what my objectives are in class, looking at the results from the test – what they are getting right; what they are getting

wrong. Is there a correlation there? Can I see a pattern? The other thing that, as I said, disturbed me was their, in my opinion, lack of writing skills. They could not write to a prompt efficiently. Questions that they would answer either in the short answer or essay formats were very vague at times and a popular format seemed to be re-stating the question. Just switching around some of the parts of speech and that was the answer. So I wanted to develop more writing skills with them because that's a goal of the entire program. And as I said, again, I wanted to make sure that what I was presenting was getting across to them. If it wasn't, I'd make adjustment.

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 3:** I did that, for better or worse, I did it in two ways. I used an entire class from the year before. I still had their tests from the semester before that. I was in the first semester of the, I believe I was in the first semester of the cohort of 04-05. But in any case, I still had the tests, although I didn't keep them in anticipation of this, I just had them. There wasn't any other reason. The other thing I did, is because we started right in the beginning of the semester, I used the existing tests for the first three chapters and then I started using the re-formatted tests with the fourth chapter and I did this with two classes so that I could compare two different classes in the same subject. Toward the end, I included a third class which was a different topic. The first two were the twelfth grade class and then really out of curiosity, I was curious to see what would happen with the eleventh graders. So I kind of re-wrote that and started them about mid-semester into this format. So I had the old test to look back on from last year and for two of the students they were the same students because they were



repeating the course. I didn't see a significant difference with the two that were repeating the course. I had the original test for the first couple of chapters, as I stated earlier. I think it was the first three, if I remember correctly so I could go back and look at that and then I could just start making a correlation. I would keep a record. There's 10 multiple choice questions. How many people missed number one, how many people missed number two, etc. etc. I also had the objectives and the concepts cross referenced because some of the questions in multiple choice were also questions that appeared in the short answer essay. So I would take a look and see when I'm asking what did they know about topic A or standard A. If I'm asking them specifically; does that change significantly from when it's a more open ended question? It's on the same objective, the same material on the test, but I'm giving them an opportunity to tell me rather than limiting them to what I wanted to know. I saw more performance when they – I saw a higher level of performance when they were allowed to tell me what they wanted to say in the short answer and the essay question. There they were able to convey more knowledge in the information than when it was a little narrower in the multiple choice, matching, or true and false.

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 3:** Data, to me it indicated that, other than the true and false, which they all across the board, did not perform well in, there was not a significant difference between the essay, the multiple choice, and the matching. I did notice a difference when the matching went beyond ten items. When I went beyond ten, there seemed to be an overall lowering of the score. It seemed like there were too many options listed

to them. But in the multiple choice, they were all limited to four options. The distracters were not ridiculous distracters. They weren't things that were so far out, but if you knew the material you should be able to differentiate them, but the highest level of performance was in the essays and in the short answer where they were freely allowed to tell me what they knew about the topic. Sometimes they filled in some gaps so they may miss a specific when I'm only giving them four choices and they have to know specifically it's A and not B, C, and D. But when they had a little more of an open question, to my way of thinking they indicated more knowledge than when they were limited.

**6. What evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?**

**Teacher 3:** I wouldn't want to put a lot of credence on this because I only did it with the one semester where I was tracking things on every single question. That particular year, the overall grades in the classes were higher than the semester before. As I recall, I don't think it was an overall increase of more than three or four points. But there was an increase. There was definitely, as I watched the students, and had the opportunity to have some of them for consecutive sessions, a semesters, in different classes, the guys that repeated, that maybe had the eleventh grade class first semester, and the twelfth grade class second semester, in my opinion, they were writing better. It was easier to pull out the information. I wasn't hunting for things and trying to read into their comments. One thing that was very obvious, was that the number of answers which were just re-writing of the question, that absolutely diminished. As a

result of this though, when I rewrote the test for the following year, I eliminated true and false completely and that would have been two years ago so that would have been four semesters. We just don't use those any more except in the economics class. For whatever reason, it just appeared to be, I was able to formulate true and false questions more precisely and more accurately in the economics material because I could use a formula or I could use a definition. For whatever reason, and I really never gave it any thought, it was more effective with economics than it was with government or with U.S. History – the true and false questions.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 3:** I don't do it as much, but we do go over the test the day after each class and based upon the responses I'm getting from students, I do look to see if a particular question is being missed an awful lot or if an essay question, the answers I'm getting are really off base. I'll go back and then I'll look at the test as a whole make a determination whether or not that point got across to the class. If it doesn't, if it didn't, I use that as a seg-way for the next day's discussion because it may show up again in the final. I do not do it anywhere near to the extent as I had done it when I was in PEP because there we were tracking each individual question for two and later three classes. That got rather laborious. But I do keep track of it now based upon how the students respond and for example, if I'm reading an example about the electoral college, and over the course of one class I'm seeing a half-dozen who are way off base, then I'll go back and I'll look at my notes and make a determination – were they just asleep during that time period or did I not cover it appropriately. Either way, I'm

going to hit it again tomorrow as a sedge way into the discussion. But quite honestly, time to do it in a depth that I did it with PEP, the time is a consideration there.

**Professional Education Program Interview  
Teacher 4  
2004-2005 Cohort**

**Interviewer:** This is teacher number 4. She was in cohort 2004-2005. She's agreed to come and volunteer to talk with me and answer some questions. I've gone over with her that this will be confidential that the transcript will not have any indication of any personal information on there.

**1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 4:** My guiding question was about whether or not giving students access to reading strategies would improve their comprehensive level in the AP class and with that giving students a choice about the types of strategies that they could use in the hopes that they would become thoughtful pre-readers to think about which reading strategies or which note-taking strategies would work best with a chapter that they were assigned to read.

**2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?**

**Teacher 4:** Well, one of the school goals, long term, has been the reading and note-taking strategies to help improve the kids with their PSSA's and just general independent learning. So I thought with, one of the things I noticed with my AP students is that they often were unable to manage their text because they didn't really have the discipline of reading a higher level textbook because the works they had before this class were really pretty easy and rather generic. So from some other

research about gifted kids in particular, many of them have great talent, but when they meet their first challenge tend struggle because they have not really had to employ any kind of discipline or organizational strategies and that tends to hurt a number of students in the process so that's kind of why I chose that for the students.

**Interviewer:** It's all been so easy for them all the way through that they suddenly hit the wall and they don't have the strategies to be able to cope with that.

**Teacher 4:** Right, some of them need a little extra help or they think they can memorize everything and it's not about memorization so we have to have that discussion too that their notes can help them think about what's most important and not just memorize a lecture.

### **3. What were the primary data sources that you used to inform your research question?**

**Teacher 4:** Well, I devised like a menu selection of note taking strategies and reading strategies and I introduced most of them for like five-ten minutes at different points at least once or twice a week or at the end of class, I would do sort of a pre-reading for the next nights assignment and suggest, you know, given the chapter is about this, when I think about that I know I want to make a comparison between these two things so maybe I want to make a Venn diagram on this topic or maybe I want to make a comparison political, economic, and social so I would kind of share each of the strategies with the students and do a little pre-reading about why I'm making this choice and how pre-reading set me up for what I was going to learn and what I wanted to focus on so I'd have purposeful reading. So I made this menu selection and I introduced it to them at various points then as the class went on they had the menu

sheet, they were required to, although on a voluntary basis, use two to three strategies per chapter. Then to see if it made a difference, I occasionally let the students use those note on a reading quiz and other times I did not let them use them on their reading quizzes. They also received bonus points for doing the activity for the entire unit as a way to sort of encourage that volunteerism when the bonus points didn't really make a difference in their grade, they just think it makes a difference in their grade so a little manipulation I guess on my part, but and then I surveyed them about three times applicative like questions about what they thought of the strategies. Had they helped them improve? Did they think they became a better reader? Had they built a better internal reading voice from the reading strategies and things like that so I think about three times over the semester, I gave them an open ended questionnaire to complete, the same questions all three times.

**Interviewer:** Good students, especially good students are conditioned to go for points so when you put points out there, that's the goal, go for the points.

**Teacher 4:** It was a very hard decision about the points part, because the bonus points because I know that, unfortunately, but I also didn't want to make it like a homework assignment because they look at that as being purely busy work, from their point of view. And so I thought with the voluntary basis, a lot of kids were still doing well, I mean, kids that had a 95% were still doing them. I'm like, there had to be a reason why they're still doing them, other than just the points, and at the end I surveyed some of the kids then I asked them the following year and a number of them told me that they continued using some of the strategies independently in other classes and that's what I was kind of hoping that they would just decide when they needed to

actually do something and not think that they never needed – to take notes whether they got bonus or not.

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 4:** Okay, well the pre-gathering was really just kind of a survey on what did the kids know about reading strategies and note-taking strategies and what did they think of the one's they had already learned in previous grade and they had a lot of very negative attitude, the kids had a lot of negative attitude because as far as they were concerned, they didn't need any help in that area. So I collected a sort of qualitative survey and then you know we started having reading checks and things like that and some kids did well and some kids didn't do so well and then I introduced the way that I was going to do it and asked for informal feedback in the beginning, then after the first couple of weeks I took the first survey of what the kids thought, if they saw any difference in their comprehension or things like that. I did another one about three or four weeks later and then also at the end of the semester. At the end of the semester I asked also if the kids thought I should continue doing it and overwhelmingly, I thought they were going to say no, but overwhelmingly, they said yes. So which I thought was a surprise. Even if I didn't ask or offer bonus points for it, should I still instruct the students in the process and they has still overwhelmingly said yes. Many of the kids had identified that they didn't necessarily, well, in the end, I asked the kids to take a look at their reading quizzes from their grade sheets and tell me whether or not they had improved over the semester and if they thought that was related to their note and reading take strategies or if it had stayed the same or if they



had noticed a general more comfortableness as the semester went on that they just felt that they understood better or did better on essays? So they took a, I guess getting my, it was hard to get the how much did it really improve them at the end. It was mostly all qualitative where they looked at their grade sheet and they could tell me directly, yes, they thought they improved and then just on their personal level after, if they thought that they had improved or not improved.

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 4:** The results were, a number of kids thought that I should do it again whether or not I give the bonus points. Not many students felt that their reading check scores had actually improved. Most felt they had stayed the same, but overwhelmingly the kids said that they thought they were better readers than they had been. Most of them felt they had finally began to develop an internal voice and what that meant. Most of them felt that it helped them, larger comprehension, the big picture was easier for them that they weren't as concerned about (intelligible) as they had been previously. So I thought those were all pluses. The semester afterwards I asked the students if they used any of them again and that was just informally, I really didn't have a way to track them all down and give them another survey. But informally, the process was still an overwhelmingly yes, that they were using from the strategies. And on my last survey, the students overwhelmingly thought the positives of what I instructed the kids was that I always allowed choice. That I never said that you must use this strategy tonight or you must use that strategy tomorrow that we sort of discussed together what might work best and here's a couple options

and then the students had to identify them on their own. Many of them did say that they would have preferred a learning packet directly from me, but they knew the reason why I wasn't giving them a learning packet and they felt that helped them learn better.

**6. What evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?**

**Teacher 4:** The evidence would be the different surveys that I did and the general student, I didn't mention before, but even generally student discussion improved as students were taking different types of notes instead of just an outline were taking comparison types of notes or flow charts or cause and effect things so they could talk in our conversations more on a higher level than just, you know, the comprehension or the factual level that we could spend more time in the higher level (intelligible) and they could do that more comfortably whether looking at their notes or without even using their notes from the previous night's reading. So I thought that informally that it was helping, and informally it also told me the strategies were helping because less kids felt stressed about what they needed to do or how do I understand my book, we were able to have a real dialog about how to approach the chapter and then lay out ways in which to do it so they didn't spend five hours reading the text for a chapter, but spent the hour that they should have been – which most people would have done. Then I think that kids overwhelmingly over the past two years have said that I should continue using the same process. I tweak it just a little bit in terms of types of

strategies and I do evaluate the process every year and every year the kids will come back with an overwhelming yes.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 4:** I still use it, I make a few changes. It generally looks the same. I still evaluate the kids in terms of a survey of what they think. In truth, I'm still kind of surprised, I really kind of thought the kids were going to say "Just don't do it, it's not useful. I hate it." Kind of things because I was the type of learner that if someone had told me I had to take notes I would have rebelled so I was totally prepared for the kids to say "no." I have had a few kids who don't do it, they have other strong strategies that they use and that's perfectly ok and allowable and so it has helped me also to develop a couple of other models for the kids. I've taken about four chapters and modeled the strategies for four of the chapters so they have a good idea of what is expected before they start. So that was one change that I made through student's suggestions but still using the same process.

**Professional Education Program Interview  
Teacher 5**

**Interviewer:** This is teacher number 5 with the PEP Program interview. He's coming in and has volunteered to do this and recognizes that he's been tape recorded and were going to transcribe the information. Welcome.

**1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 5:** The question is "How does regularly listening to and giving feed back to 9<sup>th</sup> grade band students, how to better improve the quality of their playing." The reason I picked that question, in a large group, there's 70 plus...

**Interviewer:** Now wait a minute, let me ask the question.

**2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?**

**Teacher 5:** I'm sorry. Ok, in a large group, like there're 76 students in the concert band this year, 38 of them, I'm sorry, 34 of them are freshman and to get to really know those kids or to get them to play individually is almost impossible in the rehearsal setting. If you took every kid and had them play for one minute, the whole rehearsal would be done and then what are the other kids going to do during those, you know, they're going to be talking and fooling around so what I decided to do was, I did a pre-interview with the students and then I picked a control group of 12 students. I videotaped and audio taped them. Assigned a specific part of the music to work on and play, then I went through and listened to and gave them feedback. What

were they doing well, what could they improve on and then give them sheet back to them, they took it and worked on the music again and then came in and re-recorded.

**3. What were the primary data sources that you used to inform your research question? What were the pieces that you were looking for as you were listening to them?**

**Teacher 5:** Listening to the recordings or?

**Interviewer:** Yes

**Teacher 5:** Well, the first thing I did, I'll go through the steps I did. The first thing I did was brought them in groups of four and talked to them about their actual audition process and stuff because the kids get really nervous when they had to play so I wanted to alleviate as much as the nervousness as I could before they started doing this process because if they're nervous, they're not going to play well. I brought them in and talked to them in groups. And then I had them do that. The specific things I was looking for on the audiotape I was looking for their playing variables. On the videotape, I was looking to watch their facial expressions, body language, posture things like that. So those were the things I was looking for and how I was evaluating them.

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 5:** Again, the student interviews and I also did a pre-survey and a post-survey and got information from that. The pre-survey though, I used the entire band and I got information from all the students in all the grades and that's why I narrowed it down to the 12 test students.

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 5:** I really haven't yet, I just, actually last Friday was the last of the data that came in, but I found that 11 of the 12 students improved and all of the students liked the process and would like to have more of it. So what I'd like to do is share this with Darrell now since he's coming up and continue doing this then also start doing this in the elementary school. Possibly start, if I can get Dan and Ann and Darrell to all agree with this, start it so we can, start this in the fourth grade and so when the kids get up here, they are used to doing that. Then also start an audio portfolio of the kids. I think that would really help show their improvement. What the kids found out when they were doing is that they, they would also, besides the written comments that I gave them back, if I could give them a copy of the recording of what they played and then they could hear what I was saying while they were listening to it, it would help them improve even more. It was rather interesting what I found out. And when I found out why the one kid didn't improve, the piece of music that that section was playing, and this student doesn't take private lessons or anything, we hadn't been playing in band. Once the concert was over that piece we weren't doing anymore. The other pieces we're doing for graduation so he wasn't working on the piece, he wasn't familiar with it anymore and I think that's why he got worse.

**6. That evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?**

**Teacher 5:** I have audiotapes and I have videotapes and actually in my presentation, I'm actually showing video clips of two of the students, the first and the second, and some of the progress is absolutely amazing. Even to an untrained ear, it just jumped right out at me.

**Interviewer:** So I could even hear it?

**Teacher 5:** You have a trained ear.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 5:** Well, like I said before, if we could tie this in and do it with all of the instrumental teachers I think this would be a great thing. I have been talking with Darrell about this, the guy who will be the band director at the high school next year. I told him all of the information I'm learning and he wants me to share it with him. Not only about the auditions, but also, again, with large groups it's really hard to assess them and this is a great way to do it and it wasn't really that difficult because you can have the recording equipment set up and they go in one at a time out of rehearsal it's not interfering with what you're doing with the rest of the group, it just takes a little bit of time to listen. I learned a lot about it. Actually, the big thing I learned is that I don't know the students as well as I thought I did.

**Professional Education Program Interview  
Teacher 6  
2005-2006 Cohort**

**Interviewer:** Thank you for coming in. This is teacher number 6, cohort 2005-2006.

What will be happening is this; I will be asking some questions. You will be anonymous, because what will happen is, I will take this tape and have my secretary at California University transcribe the tape and you will simply be identified as Teacher number 6. Teacher number 6 has volunteered to do this and recognizes that he's being audio taped.

**1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 6:** Specifically, I was interested in what motivates students to learn and how to get students to reach their potential as my overall question that I looked to answer everyday and I learned through the PEP program how to focus that question and I addressed that question by seeing how effective to what extent the Webquest impacts their reading and writing skills or speech and writing skills of students.

**2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing your focus?**

**Teacher 6:** As I started in the first answer, as a teacher, I'm interested in what makes students want to learn and what are effective tools in helping them to learn and getting them to reach their fullest maximizing potential.

**3. What were the primary data sources that you used to inform your research question? What were you looking at to help you decide whether they were being maximized or not being maximized? What were some of the criteria?**



**Teacher 6:** Criteria of the data were, started with the baseline of their first nine-weeks test grades and overall grades that I had recorded in their grade book. Then I looked at how the project was broken into phases from my research project. For example, I had the written aspect of the Webquest itself. There were two sets of questions they had to answer. There were identifying questions. The questions on the Webquest followed scaffolding and there were three response questions and persuasive writing thesis in the Webquest. That's one aspect that I was looking at along with the grades. Then along with their test grades, did they improve on an objective test and did they improve their writing abilities on writing the essay portion of the test? So there were four or five and then for the speech part of it, I looked at and observed, with the help of a colleague, participation amongst students when we were talking about the topics that the Webquest covered. So there were like 6.

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 6:** Pre-data collection was grades, perceptual attitude, general also (intelligible) grades, test grades, essay test grades for former tests and any other written work that I had done in class. The post-data was the Webquest, the scores on an objective test, the essay test scores that were covered by the Webquest as well, and then in class discussions were video taped in one session and were also observed by a colleague who had identifying questions – who was tallying the level of responses the students were giving.

**Interviewer:** By level, do you mean the depth of the response?

**Teacher 6:** Correct, did the student just identify the answer, did the student analyze the answer or did the student evaluate and synthesize the answer following (intelligible) on the (intelligible).

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 6:** The results are that I had more – the students generally scored higher on the objective tests than on past objective tests was one aspect that I saw and the writing seemed to be stronger, but if I were to do it again, I would get a third party to grade the essay tests giving that person the rubric so I would not be swayed to score them higher so I'd take myself out of the equation while performing the research. Those two things and then the perceptual data, that the students responded that they enjoyed the Webquest but felt that one Webquest which was on the progressive era, too much time was spent on that topic. There was the Webquest, the large group instruction, then the small group work in class, all based on this unit and from the activity you answer the questions of the Webquest and they felt it was drawn out too long. It was too, there's a class period in the library to complete the Webquest and two class periods for discussions and they did not – there was a common trend that they thought that that was too much.

**6. What evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?**

**Teacher 6:** The evidence that I have collected was all of the essay questions from the tests that compared with all of the other essay questions for each student over the

course of the year, there are easily, you can easily identify using the rubric which essay is stronger. More often than not the essay that they had in the Webquest and the practice writing was incorporated. Students scored higher.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 6:** The one thing that PEP allowed me to do, which this is my seventh year of teaching, which allowed me to do has really not been emphasized in other professional development that I have received, was it taught me to reflect on my own practices. I think as an educator, that step is often neglected and that serves as a detriment of the student's learning. If teacher's don't have the time to self-reflect on the effectiveness of their lessons, we become in a rut and it becomes monotonous where if you have the time to self-reflect and evaluate how you did and improve, that's I guess my point. But for my own class, it made me conscious of making sure that I go through the process of reflecting on my own practices. Specifically with the tool I use to evaluate. I have incorporated Webquest in four of the seven units that I teach, but have listened to, used the perceptual data that I gave, that I collected to the students and cut back on some of the discussions but not cut them out entirely. Finally, the PEP program allowed me to develop a way to get to know the students that are – because it gave me an opportunity to think about manners or a devices in which I could get to know the students better.

**Professional Education Program Interview  
Teacher 7  
2005-2006 Cohort**

**Interviewer:** Well, thank you for coming in. This is teacher number 7 and she is part of the 2005-2006 cohort. She has agreed to volunteer come and talk with me and she understands that there will be confidentiality connected with this and I've gone over that with her. We're going to be talking about the Professional Education Program interview and you went through that in the year 2005-2006.

- 1. What was your specific guiding question (area of interest) when you were enrolled in the PEP course?**

**Teacher 7:** I was looking at using real life scenarios within my science classrooms specifically about the environment. I really looked at how it impacts lower performance students and if that would help them to encourage them to perform better.

- 2. Why did you select this specific question or area of interest? In other words, what were some of the contributing factors that assisted you in narrowing this focus?**

**Teacher 7:** Well, I am a participant in a AIU program to help with science education and improving inquiry, or not improving inquiry, but adding more inquiry into the science classroom and kind of re-thinking the way a lot of traditional teaching methods in science and one of them is incorporating real life and putting things into scenarios and having scenario-based education so that's how I initially came up with that idea. I chose the environment because it was a newer unit for me to teach, one that they didn't know more about so any activities or anything that I can include in

that always helps. And I looked at lower performing students because I teach a ninth grade academic class and I find that over the years the lower performing students are becoming even more so lower performing so anything that helps improve them or make them succeed was good to so I thought it was a win win.

**3. What were the primary data sources that you used to inform your research question? In other words, what were you looking for?**

**Teacher 7:** Well, I did a lot of surveying the students. Having them write down their individual thoughts before we did – we did two different activities. We did a landfill activity and we did an integrated pest management activity and before and after each week they did written surveys and I also had them do journaling where they wrote journals and wrote their ideas down, which I read, not for grammar and things like that I read just for my own data collection. I also videotaped them while they were working so I could take some visual evidence while they were working in groups. I videotaped certain groups because I put, I made the groups purposeful to put lower performing kids with higher performing. All lower performing groups had many different variables going on so I video taped different groups with different projects working at different times to observe how they problem solve and how they are using the real life scenario to come up with the idea.

**4. How did you gather data (pre-and post-) in order to compare the results of your area of inquiry?**

**Teacher 7:** I used surveys, just simple surveys. They were paper surveys I did not use an electronic survey or anything like that. They were not necessarily anonymous because I wanted to target certain students so it went for point value the whole project

I did assign was actually for credit in the class. The journals were also another way that I got data and they journaled primarily, they journaled, in one project they journaled before and after and their thoughts. It was more like taking a survey question and expanding it so they could write more about it. Go in depth rather than just a 4, 3, 2, 1 or a yes/no or something like that.

**5. What were the results of your data analysis? How did you use the results of the data analysis?**

**Teacher 7:** Well the results were, the students did, for the most part, they did learn about the two different environmental topics which was sort of the course you want them to learn so they learned about them. Their problem solving strategies were a bit weak – not exactly what I would think about tackling a problem. They basically relied on each other. They relied on their friends. They wanted to be with their friends. They didn't like it when I made up the groups. They wanted to stick with who they knew. Even in ninth grade they weren't willing just to work with somebody even though the explanation of "You don't know who you're going to work with in the future and you may not like them, but you have to work with them." They didn't seem to like that rationale. I used the data in my classroom. I still do the same projects that I developed during PEP, but I have modified them a little bit. The IPM project that we do, we've actually, I had a student teacher and she and I worked together to kind of change it a little bit turned it more into a Webquest. A colleague that I work with took the project and she turned into a poster presentation. So that would be a little different aspect. I've also taken the group projects and turned it into a writing assignment for an upper level class. We've taken the same ideas and we've branched on it. The other

aspect on the landfill project, I pretty much do the same way as we did in the project just eliminating the journals and the surveys. The stuff that was obviously data collection. So it's something that once I developed it, I do use it.

**6. What evidence do you have that demonstrates an increase in student achievement or student understanding related to your action research project?**

**Teacher 7:** I would have to go back and look; I don't have...you know obviously the students that participated in it knew the material. They did well on their unit tests, you know on this particular question, to my recollection. I don't have any hard data to correlate or anything. But they seemed to get something out of it. They seemed to like it being more project-based rather than just a different way to learn something than we normally do.

**7. To what extent do you continue to use action research to better inform and improve your instructional practice?**

**Teacher 7:** I don't really use action research as a scientist or someone from a science background. Action research is not really research, but I won't argue that point because that was a big stumbling block for me in PEP. It took me a very, very long time to come to a research question because, you know, coming from someone who has a science degree you want to isolate variables to do that. It's a little too (illegible) touchy feely than real science. It was very hard for me to settle on a research question because every time I looked at something I wanted to isolate variables and run a control and be very, you know, have a lot of things that aren't action research I've come to learn. I do use it, where, I think every teacher uses it just very very

informally. They might not call it action research, but we've all taught lessons that didn't go well and you write it down and say "Boy this didn't work and this is how I'm going to fix it for next time." Now I still do the same projects and same things I've done for years that work and then I find out how that works. Why are they being successful with this project and try and create mimic that work with other projects. Being that we teach blocks in a semester course it's easier, you know if something doesn't work in the fall I can change it directly in the spring, I don't have to wait a whole year. So I get a lot more feedback on the block schedule for changes and things like that.